TEF 2650

COMMANDER SEARCHLIGHT XENON
INSTALLATION AND USER MANUAL

IMPORTANT

WARNING!
Xenon bulb / lamp is pressurised.
Do not work on xenon lamp
without reading this manual and precaution given.

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SAFETY INSTRUCTIONS

The intense light output may damage eyes when stared directly into the light.

Xenon light sources use an igniter located inside the searchlight head that produce a very high voltage when started. This is potentially lethal, and great care should be taken to avoid any contact with the igniter, cables or the light source itself.

Always handle xenon light bulbs carefully and without inducing any mechanical stress. Use appropriate safety gear when handling xenon light bulbs, such as protective eyewear. The xenon bulb has a high internal pressure. In case of explosion fragments of the light bulb may be very dangerous.

Any type of light source reaches a very high temperature. Do not touch if warm. Never touch with bare skin as this reduces light output.

The motorized searchlight moves both vertically and horizontally. Be aware of any personnel close to the searchlight when testing or operating.

Never use force to move the searchlight head on a motorized unit. This may damage the power train inside the motor unit.

Never open a searchlight head while energized. High voltage is present.

Always wait until light source and other components have cooled before touching any part.

GENERAL WARRANTY CERTIFICATE

Tranberg AS gives normally a general warranty on Tranberg products valid for 12 months from delivery date.

General the products will

(a) Confirm to the purchase order,

(b) Be free from liens, claims and encumbrances,

(c) Be free from failures or defects which may arise from defective design, materials or workmanship.

The warranty is based on that “The assembly- and maintenance instruction”, attached with the product, is fulfilled, and does not cover damage caused by misuse or lack of proper maintenance and care.

Regards terms of delivery:

Other agreements than standard terms of delivery are to be in writing.
Official terms of delivery, NL-01 are valid.

Regarding the bulb, please look at the warranty papers following the bulb. This must be filled in and returned with the bulb to Tranberg AS.

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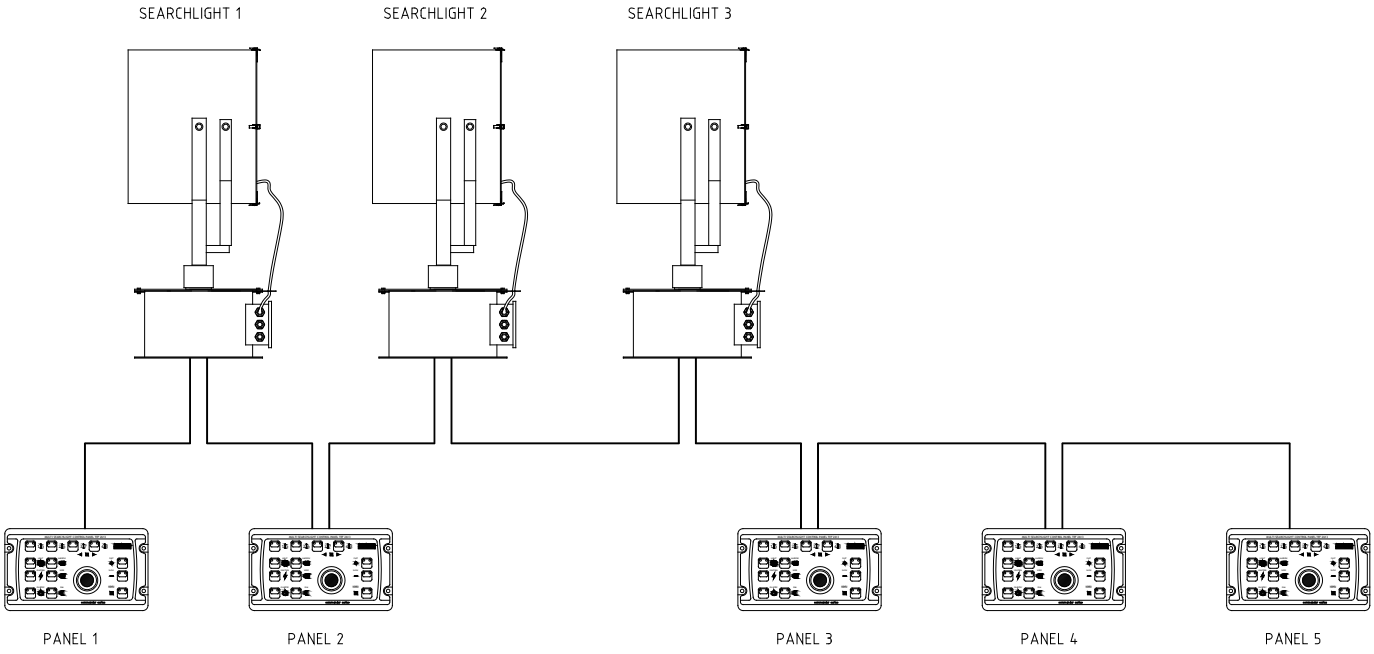
1. SYSTEM OVERVIEW



The Tranberg Commander Searchlight uses a serial communication network to control and monitor the searchlights. This makes it possible to freeely choose and combine the number of searchlights and panels. All panels can control all searchlights, one at a time, by using selection buttons on the panel.

The communication network is connected as a bus topology, i.e. the communication cable is connected from unit to unit as a chain. In that way, all units can communicate with every other unit, and can listen to every message sent over the network. Each unit connected to a bus must be uniquely identified by a number (address). This address is set either by thumbwheels, or programmed and stored in internal non-volatile memory.

One of the units has to control the communication on the bus. The unit performing this function is called a master, and in the Commander Searchlight system this function is assigned to the panel with address '0'. When the master is powered up it will check what units are present on the bus by querying each unit. If one unit is not powered up in this phase, and thus does not answer the query, it will be regarded as not-present and will not be able to communicate with the other units on the bus. It is therefore important that all searchlights are powered up before the panels.

SEARCHLIGHT MOTION CONTROL:

The Commander Searchlights are equipped with positional sensors for both motors/axes. This makes it possible to let the searchlight automatically move to pre-defined positions, and also results in a smooth, controlled motion. The searchlights can rotate more than one full revolution, approx. 370°, and the end stop is located at the connection box. The vertical movement is from approx. 15° upwards to approx. 35° downwards.

TYPES OF SEARCHLIGHTS / LIGHT SOURCES:

Available light sources:

- Halogen has a wider, long range beam. Warm-white colour. Is powered directly by 230VAC.
- Xenon has a narrow, extra long range beam. Daylight colour, part of the spectrum is ultraviolet (UV) making it useful for seeing ice (visual ice detection). Needs a separate power supply and cabling.
- HRI (metal-halide) has a high light output with daylight colour, re sembling a xenon light. Has some restrictions regarding power on/off timing (reach full light output after 1 – 2 minutes on-time). Needs a separate ballast between 230VAC and lamp.

2. OPERATION

2.1 START-UP PROCEDURE

Power-up: Apply power in the following sequence:

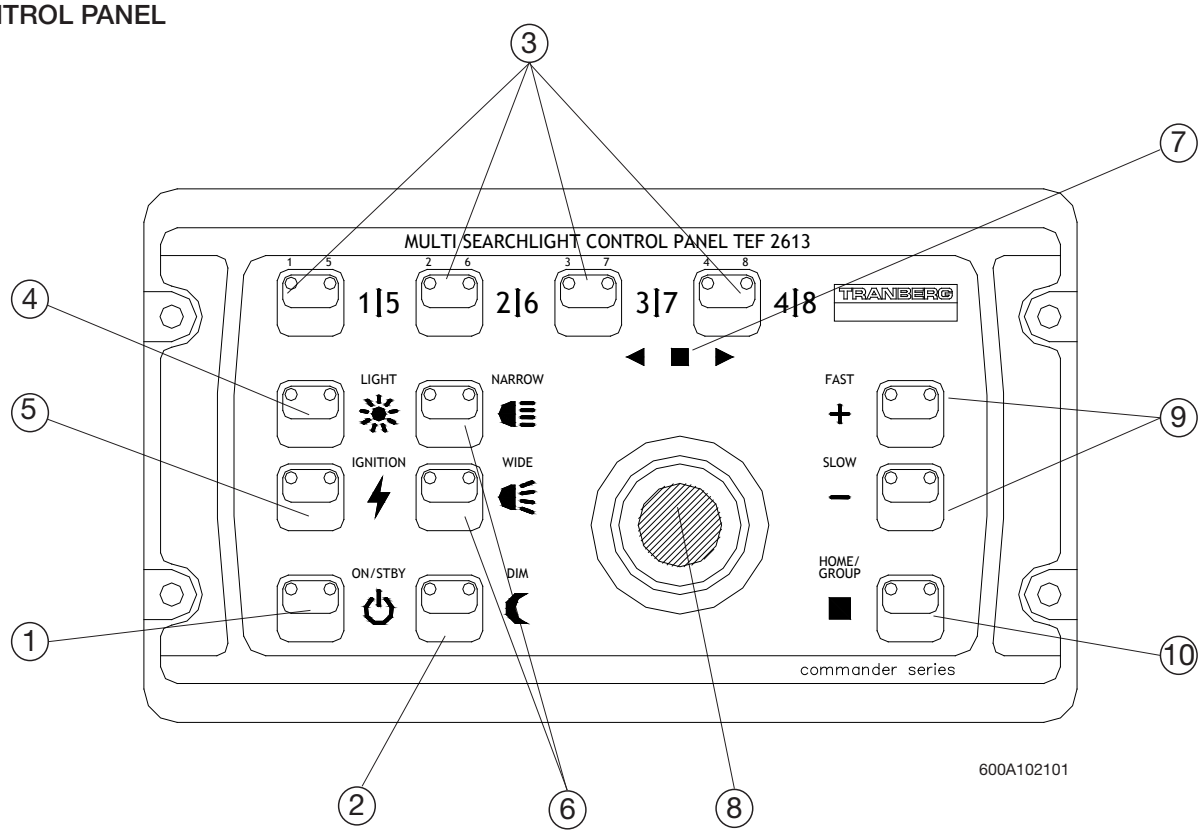
Apply the 230 VAC power to the searchlights first.

Apply the 24 VDC power to the panels next. If the panels have several separate supplies, ensure that the master panel is powered up last. The panels will be in the 'on' mode when powered up.

If, for some reason, this is not possible, please do a manual re-scan as described in chapter 5.2 after all units are powered up.

A searchlight will do a position reference search when powered up and receiving a bus query message from the master panel (a bus re-scan). It will slowly turn to the right and tilt upwards until the end positions is reached. The searchlight will not respond to joystick commands from a panel until it has finished this position search phase (but the light can be turned on and off).

2.2 CONTROL PANEL



GENERAL

Any user can control any searchlight at any time. When the lamp on a searchlight is turned on, it will be indicated in all the other panels by the indicator for that searchlight (In the select buttons) flashing slowly. If the same searchlight is selected from another panel (the select button is pressed), then the other panel gains control over that searchlight, and the first panel will loose its control. As this happens the searchlight will maintain the previous lamp on or off setting, but the speed setting will be dependent on the setting of the new control panel.
When the control panel is turned off, the searchlights last operated from this panel will automatically be turned off.

NOTE: Slow flashing is 1 sec on, 1 sec off. Fast flashing is 2 flashes per second.

1. "ON/STBY" or "POWER" (2612 / 2613 / 2614)

On / Standby button, activates the panel. The backlight will turn on. Press momentarily to turn on, press and hold for 1 sec to go to standby. In standby the panel will turn off all searchlights that was used by that panel. The yellow indicator will light steady if it is a master panel, or flash slowly if it is a slave panel.

2. "DIM" (2612 / 2613 / 2614)

Adjusts the panel backlight level. Press shortly yo change level one step, press and hold to change the level to min or max.

3. SEARCHLIGHT SELECT BUTTONS

2613: To select which searchlight you want to operate, press the buttons on the top row. The first is used to select searchlight no. 1 and 5. The first press selects searchlight no. 1, press once more (within a second) to select searchlight no. 5. For the three other buttons works the same way. It is only possible to select searchlights that are connected. The panel may operate up to 8 searchlights and the system will automatically detect the number and adresses of the searchlights that are connected.

2614: To select which searchlight you want to operate, press the buttons on the top row. The first ('A') is used to select searchlight no. 1. The first press selects the first lightsource of searchlight no. 1, press once more (within a second) to select the second lightsource. For the three other buttons it works the same way. It is only possible to select searchlights that are connected. The panel may operate up to 4 searchlights (addresses 1 to 4) and the system will automatically detect the number and adresses of the searchlights that are connected.

2 OPERATION

4. "LIGHT" (2612/2613/2614)

Turn light on or off. A green indicator light will light steady if the lamp is on. Flashes rapidly when the group function is activated.

5. "IGNITION" (2612/2613/2614)

Press to ignite the xenon lamp. Activates the ignitor as long as the button is held. Not used for other lamp types. Do not hold for more than 1 second, as this may damage the ignitor. The searchlight has a safety time-out to spare the ignitor and lamp from excessive wear.

6. "NARROW" AND "WIDE" (2612/2613/2614)

Adjusts the lamp focus. Will change the beam from wide to narrow or backwards. Applicable only for searchlights with motor focus. Press and hold to change focus. The focus motor will automatically stop at each end position.

7. POSITION INDICATORS (2612/2613/2614)

Arrow left and right:

Steady light:	The searchlight is in the sector left or right for the home position.
Slow flashing:	The searchlight is at the normal left or right end position.
Fast flashing:	The searchlight has stopped due to mechanical overload or at the end limit switches.

Square:

Steady light:	The searchlight is at its horizontal home position.
Slow flashing:	The searchlight is at its horizontal and vertical home position.
Fast flashing:	The panel has sent a 'set home position' command to the searchlight.

8. JOYSTICK (2612/2613/2614):

Left – right. Up for light downwards, down for light upwards.

9. "FAST" AND "SLOW" (2612/2613/2614):

Adjust motor speed. 9 Steps, 5 Indications

Speed	1 slow	2, 3	4, 5, 6	7, 8	9 fast
Fast					
Slow					

10. "HOME / GROUP" (2612/2613/2614):

DUAL FUNCTION:

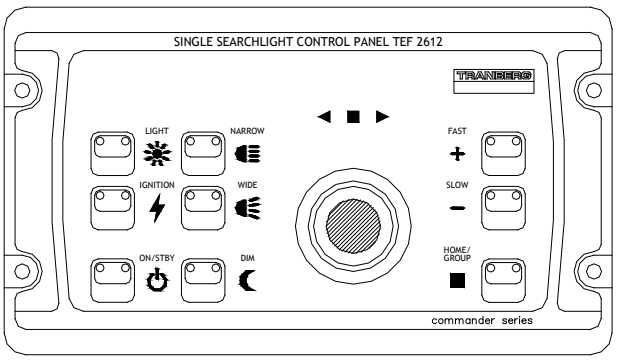
HOME: Move to "home"
If only one searchlight is selected (or has been used from a panel), a short press on this button will command the searchlight to go to its (preset) home-position. A long press (> 5s) will set the searchlight's current position as the new home position for that searchlight.

GROUP: Move several searchlights
If two or more searchlights have been turned on from the same panel, a short press on this button will start the group-function. The selected searchlights will then move simultaneously.

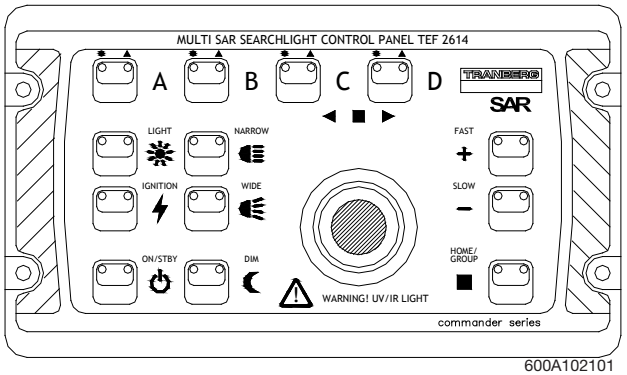
INDICATOR TEST:

1. To see if all indicators on the front of the panel are working, pro ceed as follows:
2. Turn off panel with the 'ON/STBY' button.
3. Press and hold the 'ON/STBY' button for at least 5 seconds.
4. While holding the 'ON/STBY' button, press (and release) the 'DIM' button shortly.
5. Release the 'ON/STBY' button. All indicators on the front of the panel will now flash rapidly.
6. If joystick or buttons are operated during this test, a corresponding LED (s) will extingwish as long as the button is held.
7. Press (and release) shortly the 'ON/STBY' button to exit lamp test mode and to turn on panel.

NOTE: Slow flashing is 1 sec. on, 1 sec. off. Fast flashing is 2 flashes per second.



TEF 2612 Single searchlight control panel



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TEF 2614 SAR searchlight control panel

3 MAINTENANCE

3.1 CLEANING

PANEL:
The control panel may be cleaned with a mild detergent on any parts.

SEARCHLIGHT:
Keep the searchlight and lens clean. Use only water and soft cloth to clean the searchlight. Clean the front glass / lens only when the light is off and has cooled down. If necessary, clean the mirror using alcohol. Ensure that all remains of the cleaning solvent are removed. Use only a soft cloth to clean the mirror.

XENON LAMP:
Never touch a lamp with bare fingers. Should the quartz glass bulb ever be inadvertently touched with bare fingers, remove the fingerprint immediately. Carefully clean the lamp with alcohol and a cotton swab or a lint-free cloth, after which the lamp should be rubbed dry, taking care not to scratch the quartz glass surface. If fingerprints are not removed, they will cause a weakening of the quartz glass and increased risk of bursting. Always use appropriate facial and skin protection.

3.2 LUBRICATION

The lubrication point at the bottom of the U-pieces should be greased every two years. Use grease which is resistant to temperatures down to –50°C.

3.3 MECHANICAL

Check all external screws on the searchlight periodically and tighten if needed.

Control that the lamphouse moves smoothly and with low friction both horizontally and vertically. Do not overtighten the four bolts in which the lamphouse is hinged, as this may hinder the movement of the searchlight.

Remove build-up of ice on and around the searchlight. The motor unit and the xenon lamphouse have both an internally mounted heater to avoid condensation, but it is not designed for de-icing the searchlight.

3.4 ELECTRICAL

SEARCHLIGHT: Clean and inspect the electrical connections to xenon lamp periodically. A layer of oxidation can build up as a result of lamp heating and cooling. Also inspect the other high current connections for bad contacts and overheating.

XENON POWER SUPPLY: See the manual for the xenon power supply regarding preventive maintenance and parts replacement schedule.

3.5 XENON LAMP CHANGE

1. Disconnect power to the searchlight and the xenon power supply.
2. Let the light and lamp cool for at least 15 minutes before opening the lamphouse.
3. Wear protective cover including a facial protection and leather gloves. Note that xenon lamps have a high internal pressure in both the hot and cold state, and can explode if not handled carefully.
4. Loosen the positive contact front on the lamp, loosen the locking screw and then remove the front teflon holder.
5. Put the safety cover over the lamp.
6. Unscrew the lamp from the negative contact (in front of the rear teflon holder).
7. Change the lamp and reassemble in reverse order.
8. Be careful not to damage any parts. Check the lamphouse gasket for leakage.
9. **For 3000W Xenon:**
   To prevent the cable for the fan to be broken, ensure that the cable for fan is disconnected before completely removing the backlid.

WARNING

Always use the safety covers supplied when handling xenon lamps. When handling the lamps without their safety covers, always wear safety goggles, a face mask and gauntlets with wrist protectors. Accidental breakage of the glass bulb can critically harm anyone within a radius of 10m and more.

4 INSTALLATION

4.1 MECHANICAL INSTALLATION

SEARCHLIGHTS PHYSICAL PLACEMENT:

Consider the end stop of the horizontal movement, the end stop is placed at the connection box, i.e. when the light head is facing in the same direction as the connection box. Also consider if there are sectors which should not be illuminated.

XENON POWER SUPPLIES:

For xenon lights, also consider the lengths and placements of the high-current power supply and cables to the light bulb. Keep the cables as short as possible, cables longer than 40 m are not recommended. Also keep the cables away from sensitive circuits. Do also take into consideration the ambient temperature and ventilation relating to the operating temperature of the xenon power supplies.

4.2 ELECTRICAL INSTALLATION - CABLING

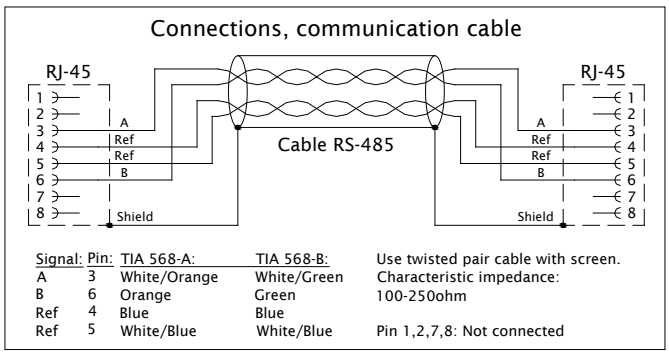
CABLING – COMMUNICATION NETWORK:

1. Use 2x twisted pair cable or 1x twisted pair + screen. Characteristic impedance: 100 – 250 ohms. Suitable cables types can be cables made for Profibus, Interbus, Ethernet, Cat5, or similar.
2. The communication network must be connected as a bus topology, i.e. from point to point (unit to unit). No loops or star connections are allowed. (See drawing 600A105539)
3. No end terminations are necessary.
4. Connect A to A, B to B and Ref to Ref. Ref is also called Sh on some units.
5. The order of panels and searchlights along the bus can be freely chosen. Tip: A drawing of the system showing the order and addresses of the units can be of great help if troubleshooting should be necessary.

NOTE1:
Keep communication cables away from all power lines.

NOTE2:
Treat / regard Shield/Reference as a signal. It shall under no circumstance be connected to Ground or other Protective Earth potentials.

See technical data for details of communication interface.



600A105512

CABLING - SEARCHLIGHT MAINS (230VAC):

For xenon searchlights the mains power supply is needed for supplying the motor unit, heater and focus motor in the lamphouse. The xenon lamp itself is powered by a separate high current DC PSU.

CABLING - XENON DC POWER SUPPLY:

Cables longer than 30 – 40 m are not recommended. Also keep the cables away from sensitive circuits. The total voltage loss at specified current should not be more than 3 – 4 volts (Note that the cable losses must be calculated for twice the length, since there are two conductors to the bulb). Cross section must be at least 10 sqmm (each conductor), for longer distances and higher power lamps (> 1000W) 25 sqmm is recommended.

VOLTAGE LOSSES (Nominal Values):

Type	Lamp Voltage	Current	Cros sect. sqmm	L:10m (x2)	L:20m (x2)	L:30m (x2)
1000W	19V	50A	16	1.08	2.15	3.23
1600W	23V	65A	16	1.40	2.80	-
			25	0.89	1.79	2.68
2000W	27V	70A	25	0.96	1.93	2.89
3000W	29V	100A	25	1,38	2,75	4,13
			35	0,98	1,97	2,95

Max. current density: 4A/sqmm
Internal cable loss:
1000W: 0.17V, **1600W:** 0.23V, **2000W:** 0.15V, **3000W:** 0,14V

4.3 ELECTRICAL INSTALLATION - SETTINGS

Address settings:

1. Each unit (searchlight or panel) must have its own unique address. Panels and searchlights have separate address spaces, i.e. a panel with setting ‘2’ does not interfere with a searchlight set to address ‘2’.
2. The addressed units (panels and searchlights) can be placed freely along the bus, they don’t have to be placed according to their address or in any special order.
3. The address of searchlights are normally pre-set from factory. See chapter “changing address on searchlight” if changes are needed. The address can also be hardwired by the address-rotary switch in the connection box.

4.4 STARTUP OF SYSTEM

1. Check that all connections are correct and no short-circuits or breaks. Check polarity of the high-current power lines to the xenon lamp (Important, as wrong polarity will destroy the lamp in a few seconds), check all 230VAC supply lines. Also check the 24VDC supply to the panels and other control modules.
2. Turn on power first to the searchlight motor units, then the xenon power supplies, and at last the 24VDC supplies to the panels. If the panels are powered from separate supplies, then first apply power to the slave panels, then to the master panel. Check visually that each searchlight makes a positional scan right after the master panel is powered up. The master panel should now find all searchlights and panels, and be able to communicate with them.
3. Check movement and light on /off of all searchlights (Do not leave the xenon lights switched-on without adjusting the power supply).
4. Adjust the xenon power supply (see ch. 4.5).

4 INSTALLATION

4.5 ADJUSTING THE XENON POWER SUPPLY

See the manual for the power supply.
When the lamp is lit, the lamp power should be adjusted up to:

Type	Current	PSU	Comment
1000W	<50AMP	PX-50N	By using the two switches 'off/low/high' and '1' - '6' (see dwg. 600A105275)
1600W	<65Amp	N3-80E	By using the hand wheel clock wise
2000W	<70Amp	N3-80E	By using the hand wheel clock wise
3000W	<100Amp	N3-100E	By using the hand wheel clock wise

The current must be measured with a DC clip-on amp-meter on the cable between the power supply and the lamp unit.

Measure and adjust the current after turning on the lamp, then wait for about 10 minutes (after the system have reached thermal stability) and do another adjustment.

NOTE:
The on/off button (manual operation) on the side of the N3-80 must be set at 'OFF' (Otherwise, the power supply is always on).

5 SPECIAL PROCEDURES

5.1 IDENTIFYING THE MASTER PANEL

For the following special procedures, the master panel need to be identified.

The master panel can be recognized by the yellow indicator in the power button. When you turn off power by pressing this button, the yellow indicator will be continuously lit in the master panel. It will blink slowly (1 sec. on, 1 sec off) on a slave panel.

5.2 RE-SCAN OF NODES CONNECTED TO THE BUS

If necessary, the master panel can do a bus scan when powered up using the following procedure:

(Note: Do not operate or use any panels or searchlights during this procedure. Ensure that all are powered up.)

1. Turn off the master panel using the power button. Release the button. The backlight will turn off.
2. Press and hold the power button for at least 5 seconds.
3. While holding the power button, press and release the second select button (marked '2/6' (2613) or 'B' (2614)). (Repeat if necessary, until backlight turns on).
4. The panel backlight will now turn on, and it will start the scanning of the bus (it takes a couple of seconds).
5. Release the power button.
6. When the scan process is finished, the panel will show which searchlights are present on the bus by fast flashing the corresponding leds on the select buttons (upper row).
7. Turn on the panel by using the power button as usual.
8. Repeat the procedure if necessary.

5.3 ALTERNATIVE RE-SCAN PROCEDURE

FOR PANELS DELIVERED FROM APRIL 2009 AND ONWARDS:
If necessary, the master panel can do a bus scan when powered up using the following procedure: A panel can do both this alternate re-scan procedure as well as the previous procedure (ch. 5.1).

(Note: Do not operate or use any panels or searchlights during this procedure. Ensure that all are powered up.)

1. Set all panels to standby ("turn off") by using the on/stdby button. The backlight will turn off. Locate the master panel (see ch. 3.2), and turn it on again.
2. Press and hold both speed buttons ('fast' and 'slow') for at least 5 seconds.
3. On the 2613 and 2614 panels, the indicators in the 'searchlight select' buttons will start flashing in sequence. On the 2612 panels, the indicators in the speed buttons will flash in sequence. Release the speed buttons.
4. The sequential flashing will last for a couple of seconds, as long as the scanning of the bus is performed. When the flashing is finished, the system is ready for use.
5. Repeat the procedure if necessary.

5 SPECIAL PROCEDURES

5.4 RESET OF SEARCHLIGHTS

1. Remove power (230VAC) to the searchlight (motor unit), wait for approx. 10 sec, and reconnect the power. (It is not necessary to disconnect the xenon power supply). If several searchlights need to be reset, repeat this for each searchlight before commencing to step
2. Do a re-scan from the master panel. Alternatively, remove and re-apply power (24VDC) to the panels, either all or at least the master panel. The searchlight will now move to the right and upwards to find the end positions, and back to center. If necessary, watch the searchlight at this stage to verify the movement.

5.5 RECALIBRATE END LIMITS ON SEARCHLIGHTS

1. Open the searchlight junction box and set DIP-switch no. 1 to ON.
2. Remove power (230VAC) to the searchlight (motor unit), wait for approx. 10 sec, and reconnect the power. (It is not necessary to disconnect the xenon power supply). If several searchlights need to be reset, repeat this for each searchlight before commencing to step 3.
3. Do a re-scan from the master panel. Alternatively, remove and re-apply power (24VDC) to the panels, either all or at least the master panel. The searchlight will now do a complete movement up – right – left – center/down to find the end limit positions, and back to center. If necessary, watch the searchlight at this stage to verify the movement.
4. Set the DIP-switch no. 1 back to OFF and close the junction box.

5.6 CHANGING ADDRESS ON A SEARCHLIGHT

PREPARATION:

1. Identify the master panel. Unmount the master panel, so as to get access to the rotary swiches on the rear. IMPORTANT: Make a note of the settings of the switches
2. Disconnect the power supply to all the searchlights. (Leave the power supply to the panels connected).

PROCEDURE:

3. Connect the power supply to the searchlight whose address shall be changed.
4. Turn off the master panel using the power button. Release the button. The backlight will turn off.
5. Set the rotary switch labeled ”N/A” on the rear, set it to one lower than the new address of the searchlight (address minus 1, e.g. set to ‘1’ if the searchlight is to be set to address ‘2’, i.e. respond to the first press of button ‘2/6’).
6. Press and hold the power button for at least 5 seconds. While holding the power button, push the button marked ”3/7” (a short normal push and release). This button can alternatively be pushed several times, until the panel backlight is lit. When the backligth is lit, release the power button. The panel will now send a special message to the searchlight.
7. Check the indicators in the searchlight select buttons (”1/5”, ”2/6”, ”3/7” and ”4/8”). After approx. 5 – 10 sec. one of them will flash fast (2 times pr. sec) to show the new address of the searchlight.
8. Push power button once to turn on the panel. Check if the searchlight can be controlled on the new address. The procedure can be repeated if necessary.
9. If more searchlights are to be changed, disconnect the power to the current searchlight, and repeat the procedure from step 3.

FINALIZING:

10. IMPORTANT: Turn the rotary switch on the rear of the master panel back to the initial (noted) setting.
11. Mount the master panel back in place, connect the power supply to all the searchlights.
12. Do a re-scan of the bus, either by disconnecting and reconnecting the power supply to the master panel, or by following the re-scan procedure described further up in this document. Repeat if necessary.

6 FAULT FINDING

6.1 GENERAL

1. Check which searchlights and from which panels the problem exists on. Can the fault be isolated to a particular searchlight or panel?
2. If it is a system with a radio control module (RCM), check if the same problems exists with the ordinary (wired) panels.
3. When changing a setting/address on a unit, remove and reapply power to let the change become operative.

6.2 PROBLEMS WITH MOVEMENT

1. No movement: Check if light is able to turn on/off: do a re-scan on the master panel (see ch. 5.2 or 5.3).
2. Limited or shifted range of movement: possible problems with end limit switches. Try resetting the searchlight (see ch. 5.4).
3. The searchlight moves with low speed only (And incorrect position indication on panel): Possible problems with position sensors. Try resetting the searchlight (ch. 5.4) or a recalibration of end limits (ch. 5.5).
4. Spurious movement when joystick or panel is not operated: Possible electrical noise or interference on the communication network. Check if this happens under special operation conditions of the ship or other equipment. Alternatively, try resetting the searchlight (ch. 5.4)
5. Not able to select a searchlight from any of the panels. Possible failure of power supply or power dip (230VAC) to the searchlight. Do a a re-scan on the master panel (see ch. 5.2 or 5.3).

6.3 PROBLEMS TURNING ON OR OFF THE LAMP

1. Check if movement functions normally. If yes, then the communication with the searchlight is OK and the fault may be in the lamp circuits: Check the lamp itself, electrical wiring and relays. If no, first try to reestablish the communication with the searchlight: Do a re-scan on the master panel (see ch. 5.2 or 5.3).
2. Check if green indicator in “light” button functions normally (toggles on/off when pushing the button). If yes, then the communication with the searchlight is OK and the fault may be in the lamp circuits: Check the lamp itself, electrical wiring and relays. If no, the communication network may be faulty or being influenced by interference, or the searchlight may have a power loss (230VAC). Try to reestablish the communication with the searchlight: Do a re-scan on the master panel (see ch. 5.2 or 5.3).
3. Check relays in the lamp power supply circuit: The control circuit (P/N 4587) before the xenon PSU, contactor in junction box, relay on motor drive electronics.
4. If a SIM- module is installed, check correct network connection and online status (status indicators, see ch. 7.3), check that the number of the output controlling the contactor corresponds to the searchlight address.
5. Check ignition function: Check if there is sparking in the lamp, check for noise (cracking or hissing) when igniting, check that there is no sparkover at the high-tension cables inside the lamphouse. Under normal operation there shall be noise (hissing) and sparking in the lamp. If noise is heard but no spark in lamp, there may be a failure in the high-tension cables. If no noise is heard, the ignitor may be faulty. Warning: The ignition voltage is 20 – 30 kV.
6. Check and measure the supply current to the lamp. If too small, light will extinguish, if too high, overheating of lamp and reflector may occur and lifetime of lamp will be reduced (see ch. 4.5).

6.4 PROBLEMS WITH PANELS

1. A master panel is required to get the system to function. If the panel set to master is faulty, the system will not function. Change address on one of the other (slave) panels to ‘0’, remove and reapply power (to the panel), and the panel will function as master. See also ch. 5.2 and 5.3 for re-scan from the master panel.
2. If a button or a joystick is faulty, do the indicator test described in ch. 2.2.

6.5 PROBLEMS AT INSTALLATION

1. Check correct wiring (A is always connected to A, likewise for B and Ref. No grounding of Ref or connected to protective earth). Tip: if one unit in the middle of the comm. network bus does not respond, it may be that A and B are swapped both for the incoming and the outgoing cable.
2. Jerky movement (and/or light goes uncontrolled on/off) can be caused by electrical noise on the network. Check correct wiring, especially mix-up of Ref and A or B.
3. Two or several searchlights move simultaneously when only one is selected from the panel: Check the addresses of the searchlights (same address on two units).
4. Not possible to select any searchlight, or strange behaviour of the indicators on one or more panels. Check the addresses on the panels, two or more set at the same address.
5. Master panel: There shall be one and only one panel set to master (ADR = 0) in a system. If no panel is set as master, the system will appear “dead”, if more than one, the panels will have an unpredictable behaviour.
6. If several faults are present on a system, try to isolate one panel and one searchlight and get this to work, then add more units step by step.
7. To decide whether cabling or searchlight is erroneous, power a panel (set to master) with a 9V battery and connect the communication network directly to a searchlight.

7 CONNECTIONS, SETTINGS AND INDICATORS

7.1 PANELS

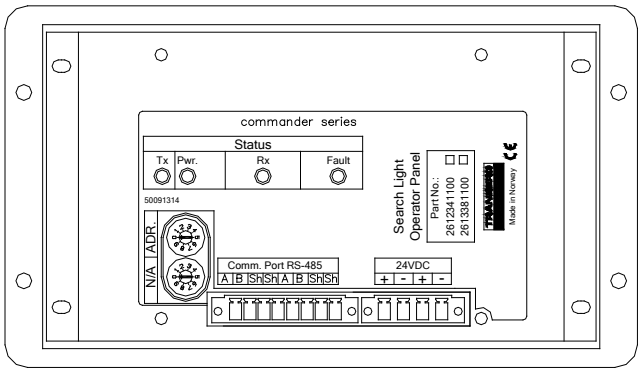
There are 3 different panel models:

1. TEF 2612 Single (this panel can only control 1 searchlight, searchlight no. 1)
2. TEF 2613 Multi (the standard panel for control of up to 8 searchlights)
3. TEF 2614 SAR (Search And Rescue, can control 4 searchlights with 2 light sources each)

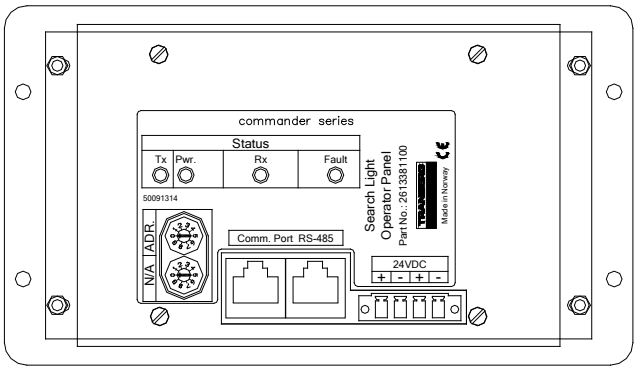
All models are identical regarding outer dimensions and connections. The 2613 and 2614 panels have 13 keys, while the 2612 panel has 9 keys (It does not have the upper 4 searchlight select keys).

There are 2 versions of each of these panel models:

1. Old version with phoenix type screw terminals as bus connector
2. New version with RJ-45 connectors as bus connector



Old version (Delivered before April 2009) 600A104817



New version 600A102101

CONNECTIONS

Versions with phoenix screw terminals:
Connect 'A/B' to one pair and 'Sh1/2' to one pair. Alternatively: 'A/B' to one pair, screen to Sh1 or Sh2.

Signal	Alt. 1	Alt. 2
A	Pair 1	Pair 1
B	Pair 1	Pair 1
Sh (Reference)	Pair 2	Screen
Sh (Reference)	Pair 2	Screen

Version with RJ-45 connectors

Pin	Color (TIA 568-A)	Color (TIA 568-B)	Signal
1	White / Green	White / Orange	N/C
2	Green	Orange	N/C
3	White / Orange	White / Green	A
4	Blue	Blue	Reference
5	White / Blue	White / Blue	Reference
6	Orange	Green	B
7	White / Brown	White / Brown	N/C
8	Brown	Brown	N/C
Shield	-	-	Shield

SETTINGS

For all panels with phoenix screw terminals and panels with RJ-45 connectors delivered after April 2009:

Rotary Switch		Settings		
N/A	ADR	Address	Mode	Panel Type
0	0	0	Master	
0	1 - 7	1 - 7	Slave	TEF 2613
1	0 - 7	8 - 15		
2	0	0	Master	
2	1 - 7	1 - 7	Slave	TEF 2612
3	0 - 7	8 - 15		
4	0	0	Master	
4	1 - 7	1 - 7	Slave	TEF 2614
5	0 - 7	8 - 15		

For panels with RJ-45 connectors delivered before April 2009:

Rotary Switch		Settings		
N/A	ADR	Address	Mode	Panel Type
0	0	0	Master	TEF 2613
0	1 - 9	1 - 9	Slave	
2	0	0	Master	TEF 2612
2	1 - 9	1 - 9	Slave	
4	0	0	Master	TEF 2614
4	1 - 9	1 - 9	Slave	

Note: The addresses 10 – 15 are not available on these panels.

7 CONNECTIONS, SETTINGS AND INDICATORS

INDICATORS

Priority	Power btn LED	Fault LED	Description
1	Fast flash	Fast	Power on or off. Network error: No messages received.
2	Fast flash	Slow	Power on or off. Network error: The module receives messages on the bus, but none to its own address.
-	Steady on	Off	Power off/standby, Master Panel
-	Slow flash	Off	Power off/standby, Slave Panel (Receives messages from master)
-	Off	Off	Power on, Master or Slave Panel

if a master panel do not get any answers/messages from any other slave or node, then the master will signal 'No messages received'.

Slow flash: 1 sec. on, 1 sec off
Fast flash: 2 blink per second.

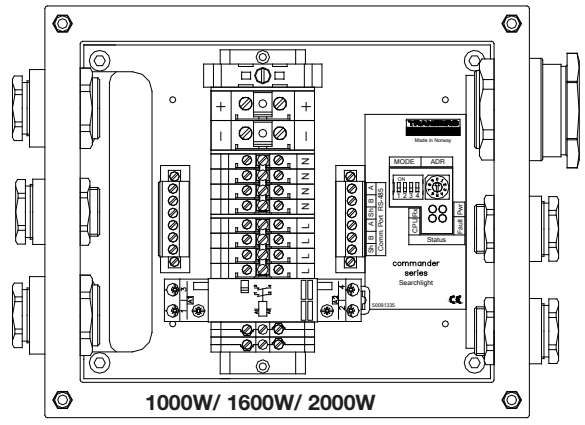
The yellow Rx and Tx LEDs shows the activity on the bus, and will flicker at normal bus activity.
The green Power LED will light steady when 24VDC is applied / supplied.

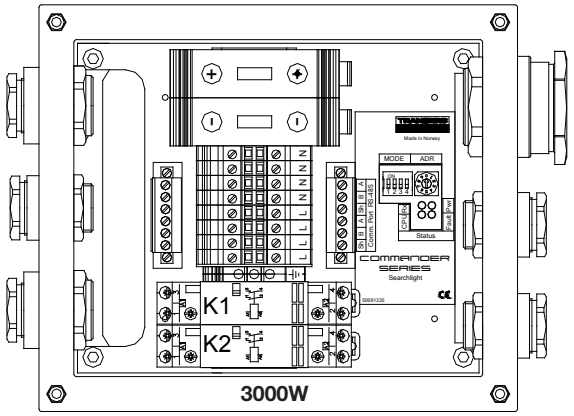
7.2 SEARCHLIGHT MOTOR UNIT

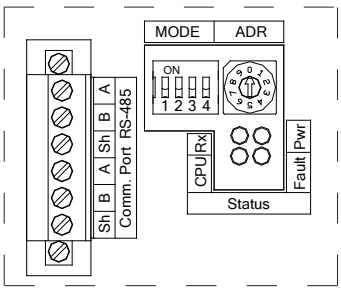
There are 2 different versions of the motor unit:

1. Version 1 with internal electronics: Connections are on numbered screw terminals (See connection diagrams). No visible indicators or settings. Address setting is done via bus programming. See chapter 5.6 "Changing the address of a searchlight". (Indicators on the internal electronics board behave similarly to the indicators on the new version 2 electronics: Pwr –> Pwr, Rx –> Rx, I2 –> CPU).
2. Version 2 (new) with electronics in the junction box

NOTE: The following chapters apply to version 2 (new) only.







CONNECTIONS

Pin	Signal	Comment
6	A	
5	B	
4	Sh	Reference
3	A	
2	B	
1	Sh	Reference

Mode	
DIP switch	Description
1	If set to one: Do a full positional re-scan at next power-up/bus query (deletes and replaces the previous memorized endpositions).
2 - 4	Not in use

Rotary switch	
Address	Description
0	Use the programmed address. To change see chapter "Changing address on a searchlight".
1 - 9	Set address equal to number. 1 = 1 (A) on panel, 2 = 2 (B) on panel, etc.

For safety reasons the motors in the searchlight will stop after 1.5 seconds without communication on the bus.

7 CONNECTIONS, SETTINGS AND INDICATORS

INDICATORS:

Rx (Yellow): shows the activity on the bus, and will flicker at normal bus activity
Pwr (Green): light steady when the internal 24VDC is OK.

CPU (Green):

Priority	CPU LED	Description
1	Steady on	Is on for 5 sec. when power is applied
2	Fast flash	All OK and receiving messages from the bus master
3	Slow flash	OK, but not receiving messages to itself from the bus
-	Off	

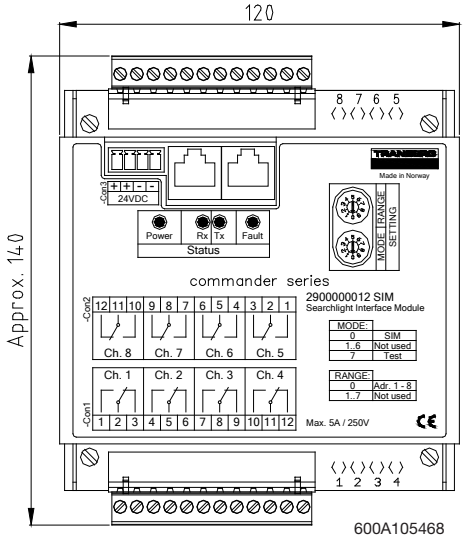
Fault (Red)

Priority	Fault LED	Description
1	Steady on	1. Output stage of drive electronics has an overtemperature condition 2. During positional scan at power-up. If one of the conditions for fast or slow blinking occur at this phase, it will start blinking correspondingly.
2	Fast flash	Overcurrent/overload at one or both motors. Will continue to blink fast until both motors are driven at the same time.
3	Slow flash	Not receiving any messages to itself. Delayed 5 sec. after the CPU LED.
-	Off	Normal condition

7.3 CONTROL MODULES

SIM and RCM module:

Priority	Fault LED	Description
1	Steady on	Functional error: Can be several causes.
2	Fast flash	Network error: No messages received.
3	Slow flash	Network error: The module receives messages on the bus, but none to its own address.
-	Off	Module and outputs OK.



8 TECHNICAL DATA

SEARCHLIGHT

Model:	Xenon 1000W	Xenon 1600W	Xenon 2000W	Xenon 3000W
Dimensions:				
Length:	570 mm	570 mm	660 mm	695 mm
With:	497 mm	497 mm	598 mm	598 mm
Height:	959 mm	959 mm	1084 mm	1084 mm
Height w/pedestal:	1559 mm	1559 mm	1684 mm	1684 mm
Weight searchlight (without power supply):	58 kg	58 kg	68 kg	73 kg
Weight pedestal:	14,5 kg	14,5 kg	14,5 kg	14,5 kg
Electrical:				
Line input voltage (*):	230 VAC 202-254 VAC			
Line input current (max):	3A			
Standard cable gland dia.:	2 pcs. E204/2A/M20 6.4 – 11.8mm Ø , 1 pc. E204/4A/M32 20 - 26.5mm Ø			
Comm. interface:	RS-485, Galvanically isolated			
Required cable impedance:	typ. 100 – 250Ω			
Optical system:				
Lamp power:	1000W	1600W	2000W	3000W
Lamp operating current:	max 50 ADC	max 65 ADC	max 70 ADC	max 100 ADC
Lamp lifetime (approx.):	2000 h	2000 h	2000 h	1000h
Luminous flux:	32 000 lm	60 000 lm	80 000 lm	140 000 lm
Divergence:	1 - 2°	1,5 - 3°	1,5 - 3°	3 - 8°
Theoretical range (at 1 lux):	6700 m	7400 m	9200 m	11500m
Reflector diameter:	355 mm (14”)	355 mm (14”)	457 mm (18”)	457 mm (18”)
Focal point distance:	69 mm (2 3/4”)	69 mm (2 3/4”)	83 mm (3 1/4”)	83 mm (3 1/4”)
Tranberg Lamp Part No.:	9400095	9400088	9400085	9400106
Lamp power supply type:	PX-50	N3-80	N3-80	N3-100E
Motion (motor unit):				
Vertical range (positive = up):	50° (+15° - –35°)			
Vertical speed:	0.7° - 11° per sec			
Horizontal range (positive = right):	370° (±185°)			
Horizontal speed:	2° - 40° per sec			
Materials:				
Lamphouse and motor unit:	Stainless steel			
Base:	Stainless steel			
Lens:	Toughened soda-lime glass			
Mirror:	Silver plated glass reflector			
Fork and lifting rod:	Stainless steel			
Screw joint material:	Stainless steel			
Surface treatment:	Powder coated RAL 9010			
Ingress protection (DIN40050):	IP56			
Operating temperature:	– 50°C - + 50°C			

(*) Other voltages available on request

8 TECHNICAL DATA

PANEL:

Model:	2612, 2613, 2614
Length:	163 mm
Width.	96 mm
Height:	62 mm
Height w/joystick:	105 mm
Weight:	360 g
Mounting:	Flush
Input voltage:	12 – 28 VDC
Input current (at 24V):	max 120mA
Ingress protection (DIN40050):	IP20
Operating temperature:	0°C - + 40°C
Storage temperature:	– 20°C - + 60°C

SIM (Searchlight Interface Module):

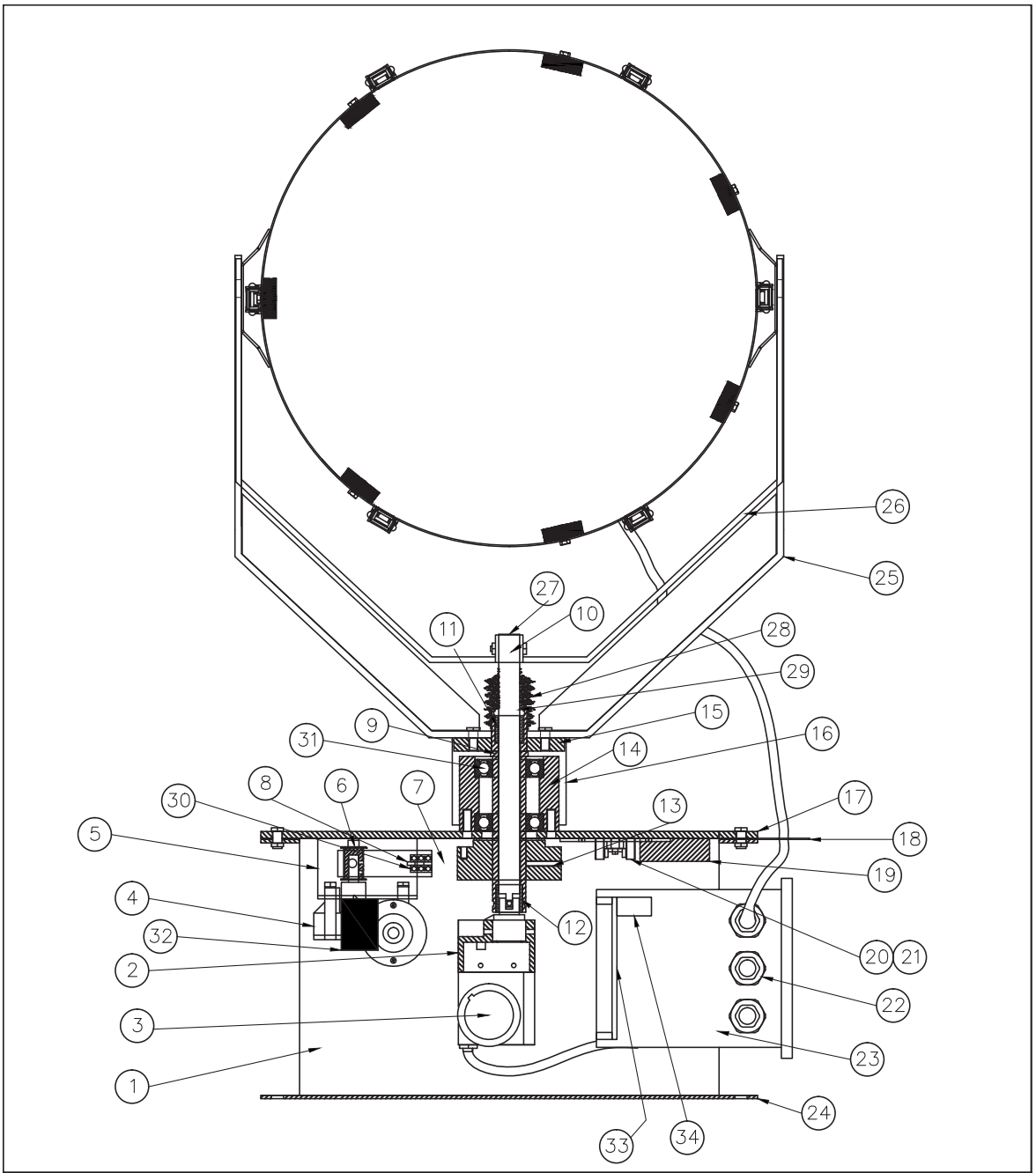
Model:	2900
Length:	120 mm
Width	140 mm
Hight:	
Weight:	
Mounting:	35 mm DIN-rail
Input voltage:	20 – 28 VDC
Input current (at 24V):	max 200 mA
Ingress protection (DIN40050):	IP20
Operating temperature:	0°C - + 40°C
Storage temperature:	– 20°C - + 60°C

XENON PSU:

See also manufacturers specifications.

Model:	PX-50N	N3-80E	N3-100
Dimensions:			
Length:	595 mm	360 mm	320 mm
Width:	245 mm	320 mm	380 mm
Hight:	238 mm	770 mm	770 mm
Line input voltage:	230 VAC	230 VAC	230 VAC
Max input current:	11 A	15.2 A	18 A
Line type:	1-phase	3-phase	3-phase
Ingress protection (DIN40050):	IP20	IP20	IP20
Operating temperature:	0°C - + 40°C	0°C - + 40°C	0°C - + 40°C
Storage temperature:	– 20°C - + 60°C	– 20°C - + 60°C	– 20°C - + 60°C

600A103537 - TEF 2650 XENON 1000/1600/2000/3000W ASSEMBLY DRAWING



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Projection	Gen. rough.
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	Gen. toler.

ASSEMBLY DRAWING
TEF 2650 XENON
1000/1600/2000/3000W SEARCHLIGHT

Drw. no.600A103537		Rev.
File nr. 600A103537		
Subst. for		Format A3
Subst. by		
Page 1 of 3	Approvals	
Scale NONE	Cust.	
Date 16.01.08	Contr.	
Design C.K.R.	Appr.	

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600A101119 - PART LIST ASSEMBLY DRAWING FOR 1000/1600/2000/3000W

POS	NUMB.	ART. NO.	DRAWING NO.	DESCRIPTION	DIM., MATERIAL
1	1	4292	600A101039	FRAME FOR MOTOR CASING	AISI 304
					1,25MM PLATE
2	1	4288	600A101035	MOTOR SUPPORT VERTICAL MOTOR	AL BOLT Ø90
3	1	56000002		VERTICAL MOTOR	
4	1	56000001		HORIZONTAL MOTOR	
5	1	4287	600A101064	BRACKET FOR HORIZONTAL MOTOR	AISI 304
					3MM PLATE
6	1	4300	600A12131	TOOTH BELT DISK	
7	1	56000101		TOOTH BELT	
8	1	4321	600A101056	TENSIONING TOOTH BELT	
9	1	4302	600A12126	SWIVEL PIN	AISI 304
					3MM PLATE
10	1	4289	600A12130	MANOUVRE BOLT	
11	1	4305	600A12128	UPPER SLEEVE	OILON/NYLON
					Ø25,9
12	1	4306	600A12128	LOWER SLEEVE	OILON/NYLON
					Ø24
13	1	4299	600A101027	GEAR WHEEL 60T (HORIZONTAL)	Ø94
				HORIZONTAL MOVEMENT	
14	1	4290	600A12124	BEARING HOUSE	
					Ø90
15	1	4303	600A12125	CLAMPING PLATE FOR ELEVATOR	AISI 304
					Ø103
16	1	4304	600A101129	SEALING COLLAR FOR SWIVEL PIN	AISI 304
					Ø104x2
17	1	4261	600A12120	TOP PLATE FOR MOTOR SUPPORT FRAME	AISI 304
					6MM PLATE

PART–LIST

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PART LIST
FOR XENON SEARCHLIGHT
1000W/16000W/2000/3000W

ASSEMBLY DRAWING

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Drw. no.600A101119		Rev.
File nr. 600A101121		
Subst. for		Format A4
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Page2 of 3	Approvals	
Scale	Cust.	
Date 28.06.05	Contr.	
Design C.K.R.	Appr.	

600A101119 - PART LIST ASSEMBLY DRAWING FOR 1000/1600/2000/3000W

POS	NUMB.	ART. NO.	DRAWING NO.	DESCRIPTION	DIM., MATERIAL
18	1	4307	600A101113	BRACKET FOR ABUTMENT	AISI 304
					1.25MM PLATE
19	1	50860085		TRANSFORMER	
20	1	4315	600A101057	PLATE FOR STOPSWITCH	AISI 304
					3MM PLATE
21	1	4361	600A101061	STOP ARM	AISI 304
					3MM PLATE
22	3			CABLE GLAND	BRASS
23	1	4317	600A101211	JUNCTION BOX	AISI 316L
24	1	4294	600A12122	BOTTOM PLATE MOTOR CASING	AISI 304
					3MM PLATE
25	1	4295	600A101025	ELEVATOR 1000/1600W XENON (A)	AISI 304
		4728		ELEVATOR 2000/3000W XENON	
26	1	4297	600A101040	MANOUVRE BOW 1000/1600W XENON (A)	AISI 304
		4729		MANOUVRE BOW 2000/3000W XENON	
27	1	4308	600A12127	MIDDLE PIECE	AISI 304
28	1	56000118		RUBBER ELEMENT	
29	1	56000115		DOUBLE STRIPPER	
30	2	58010006		BALL BEARING	
31	2	58010007		BALL BEARING	
32	1	4681		SENSORCARD	
33	1	59004532		PRINTCARD P1059	
34	1	50231043		RELAY 16A	

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Subst. for	Format A4
Subst. by	
Page 3 of 3	Approvals
Scale	Cust.
Date 28.06.05	Contr.
Design C.K.R.	Appr.

PART LIST
FOR XENON SEARCHLIGHT
1000W/1600W/2000/3000W

ASSEMBLY DRAWING

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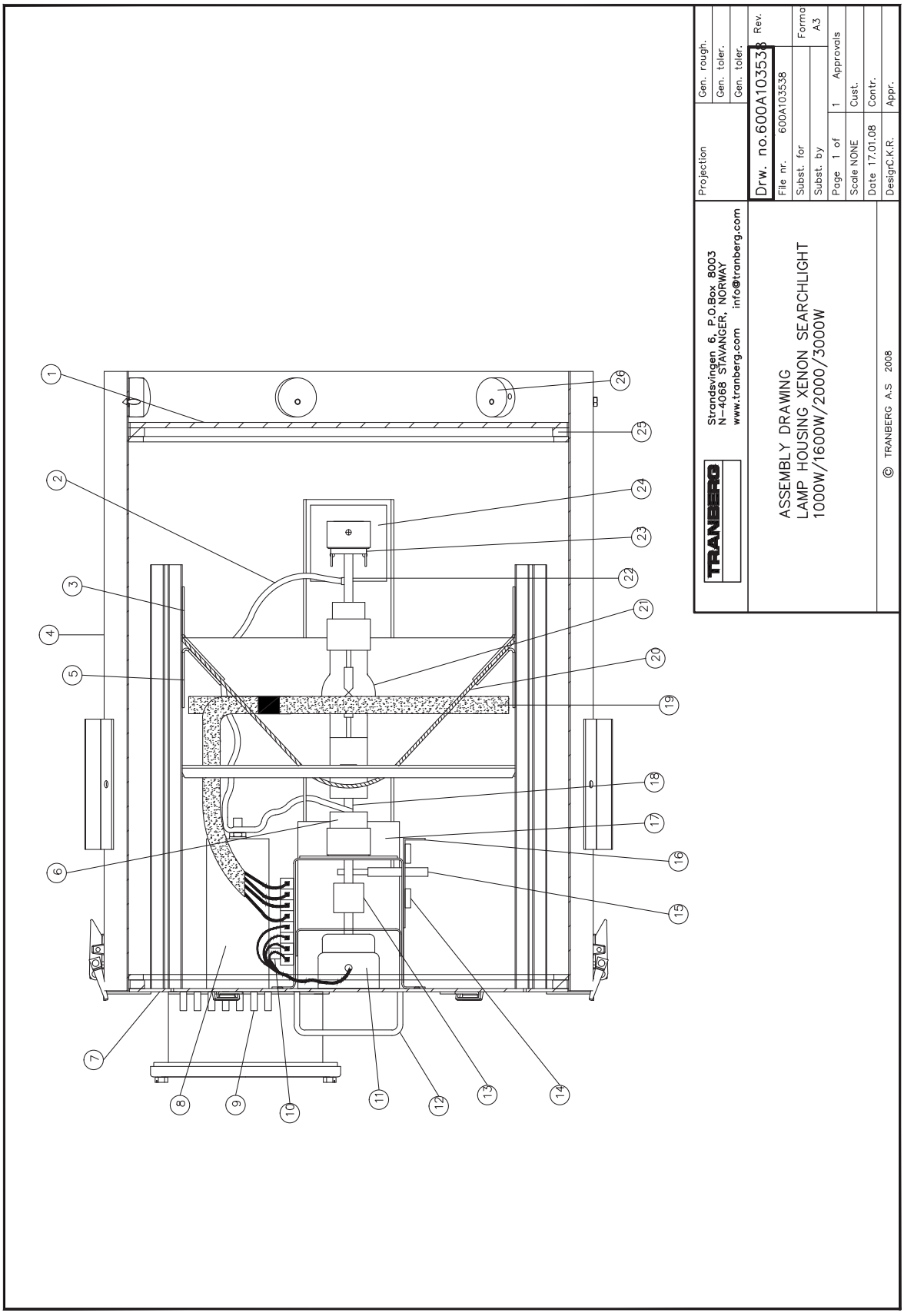
600A103538 - LAMP HOUSING TEF 2650 XENON 1000/1600/2000/3000W



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17	1	50860112		STARTER IREM AS 8030 230V 1000/1600W XENON	
		50860116		STARTER IREM AS 16040 2000/3000W XENON	
16	1	4581	600A102846	BRACKET FOR FOCUS SWITCH	AISI 304
15	1	5482	600A102852	FOCUS ARM	
14	2	50214041		END SWITCH	
13	1	4518	600A102412	CONNECTOR FOR MOTORFOCUS XENON	
12	1	98994007		HANDLE BLACK G/F	POLYPROPYLEN
11	1	56000003		MOTOR FOR FOCUS TYPE G15	
10	1	50220010		CAPACITOR 230V 60Hz	
9	7	50229516		EMC FILTER	
				TYPE: 1280F-060	
8	1	50229515		EMC FILTER EPCPS	
				TYPE: B85 321A 2205A101	
7	1	4434	600A102253	BACKLID, WELDED 1000/1600W	
		5135		BACKLID, WELDED 2000/3000W	
6	1	4448	600A102408	LAMP FITTING XENON, REAR, TEFLON 1000/1600/200/3000W	
		4442		LAMP FITTING, REAR 2000/3000W	TEFLON BOLT Ø35
5	3	4502	600A102368	REFLECTOR CLIP, REAR 1000/1600W	AISI 304
4	1	4413	600A102254	LAMP HOUSING Ø450, WELDED 1000/1600W	AISI 304
		5122		LAMP HOUSING Ø540, WELDED 2000/3000W	
3	3	4501	600A102367	REFLECTOR CLIP, FRONT	AISI 304
2	1	50291191		WIRE TG 180 1000/1600W	
		50291192		WIRE TG 180 2000/3000W	
1	1	50450040	600A102008	FRONT GLASS 1000/1600W	HARDENED GLASS
		50450041		FRONT GLASS 2000/3000W	

PART-LIST

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	Gen. toler.
	Gen. toler.

PART LIST FOR ASSEMBLY DRAWING
LAMP HOUSING (600A103538)
1000W/ 1600W/ 2000/3000W
XENON SEARCHLIGHT

Drw. no.600A104043	Rev. B
File nr. 600A104043	
Subst. for	Format A4
Subst. by	
Page2 of 3	Approvals
Scale NONE	Cust.
Date 15.10.08	Contr.
Design C.K.R.	Appr.

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600A104044 - PART LIST FOR LAMP HOUSING XENON 1000/1600/2000/3000W

POS	NUMB.	ART. NO.	DRAWING NO.	DESCRIPTION	DIM., MATERIAL
26	7	4446	600A102009	SEAL FOR FRONT GLASS 1000/1600/2000/3000W	BOLT POM Ø35
25	3	98999072		RUBBER SEAL 1000/1600/2000/3000W	SILICON
24	1	4456	600A102252	LAMP FITTING, FRONT 1000/1600W	
		4621		LAMP FITTING, FRONT 2000/3000W	
23	1	4447	600A102284	LAMP FITTING XENON, TEFLON 1000/1600/2000/3000W	TEFLON
22	1	4517	600A102411	LAMP FITTING BRASS, FRONT 1000/1600W	
		4692		LAMP FITTING BRASS, FRONT 2000/3000W	
21	1	9400085		XENON LAMP XBO 2000W	
		9400106		XENON LAMP XBO 3000W	
21	1	9400095		XENON LAMP XBO 1000W	
		9400088		XENON LAMP XBO 1600W	
20	1	50890045		REFLECTOR 14" 1000/1600W △B	
		50890040		REFLECTOR 18" 2000/3000W	
19	1	4415		HEATER CABLE 1000/1600/2000/3000W	
18	1	4516	600A102410	LAMP FITTING BRASS, REAR 1000/1600W	BRASS
		4693		LAMP FITTING BRASS, REAR 2000/3000W	

PART-LIST

SYMBOL	REVISION	DATE	SIGN.
△B	Changed part number on pos. 20 reflector (from 50890033 to 50890045)	16.04.15	CKR

TRANBERG

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www.tranberg.com info@tranberg.com

Projection

Gen. rough.
Gen. toler.
Gen. toler.

PART LIST FOR ASSEMBLY DRAWING (600A103538)
LAMP HOUSING
XENON SEARCHLIGHT

Drw. no. 600A104043 Rev. B
File nr. 600A104044
Subst. for
Subst. by
Format A4
Page 3 of 3
Scale NONE
Date 15.10.08
Design C.K.R.

Approvals
Cust.
Contr.
Appr.

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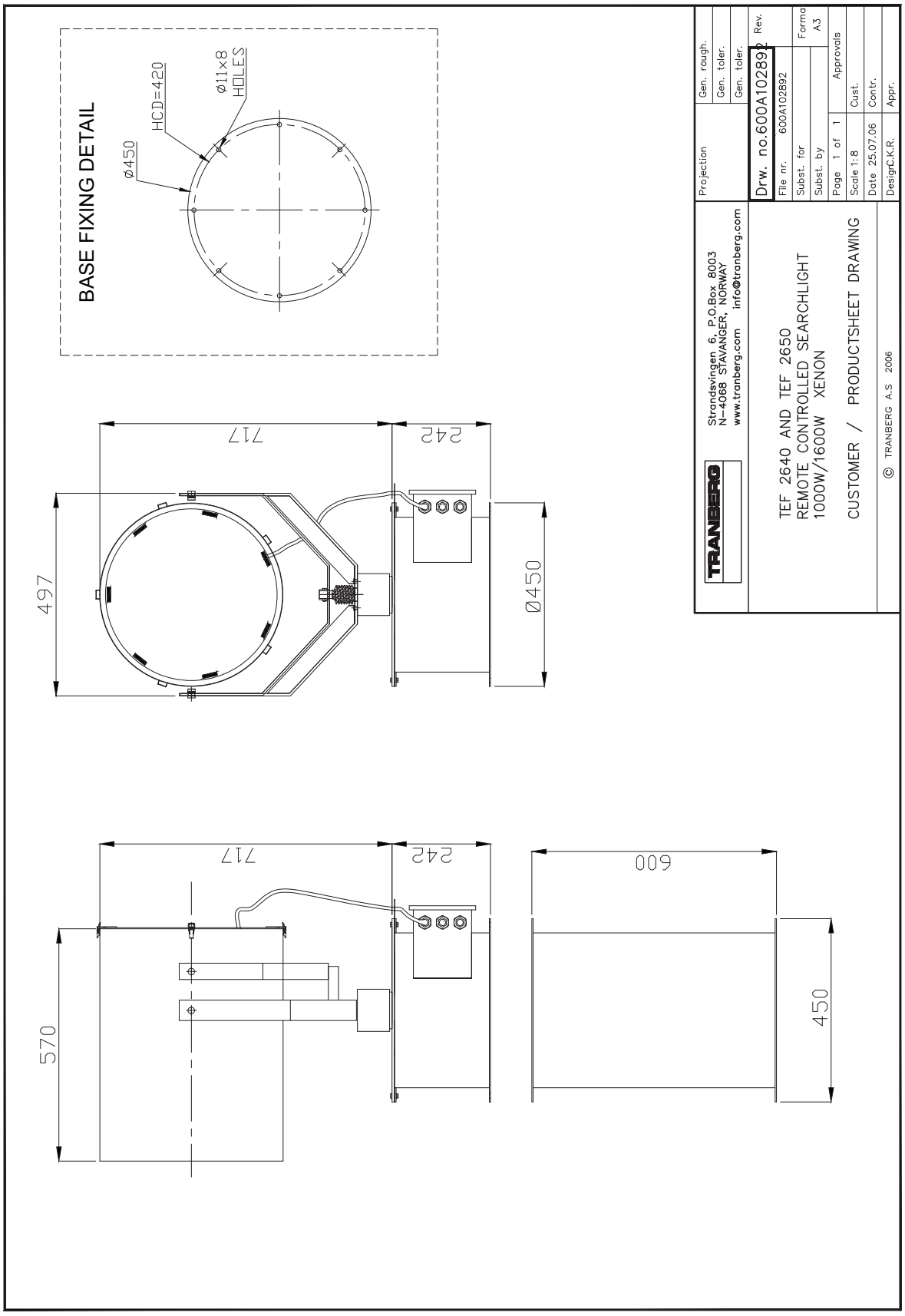
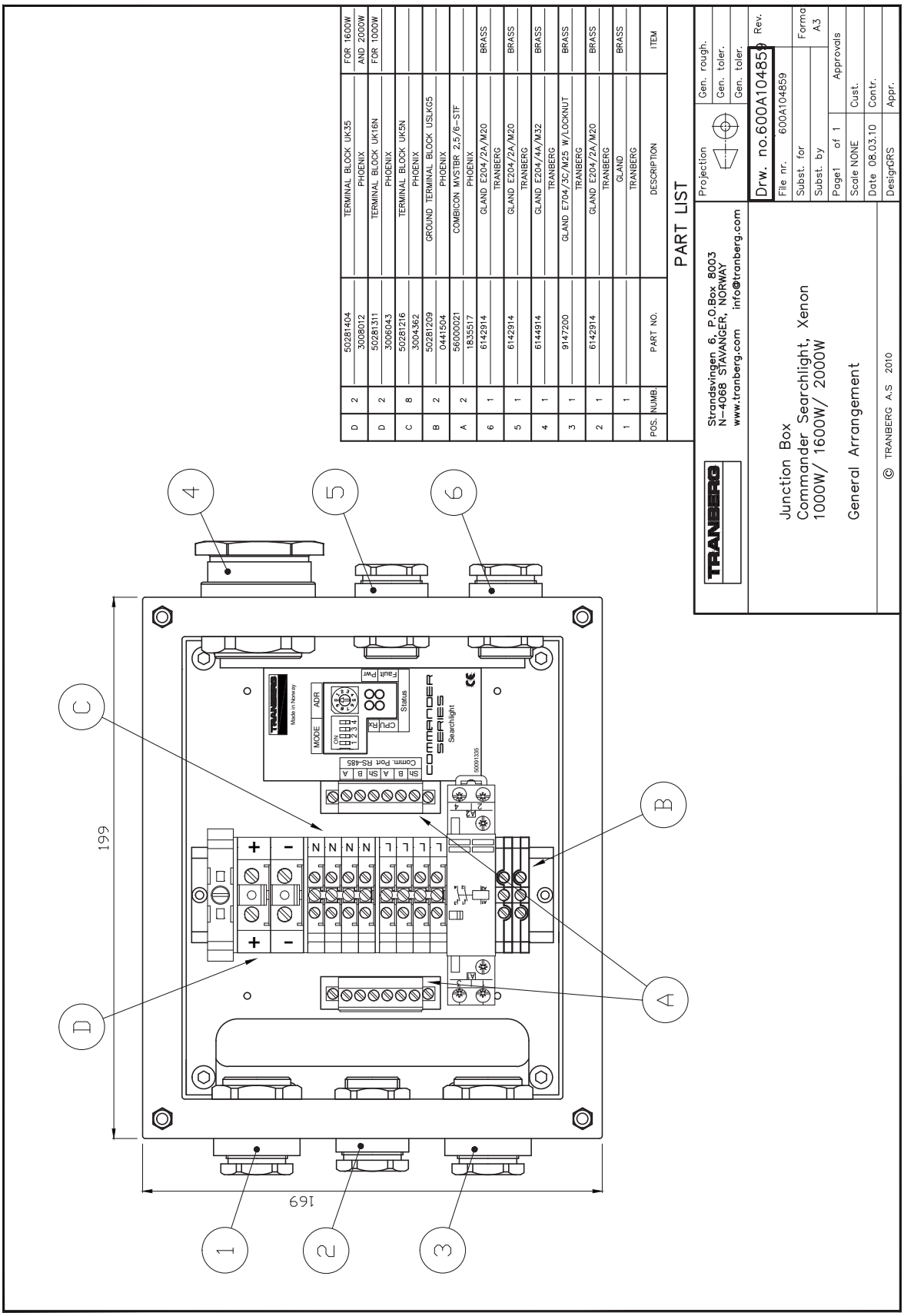
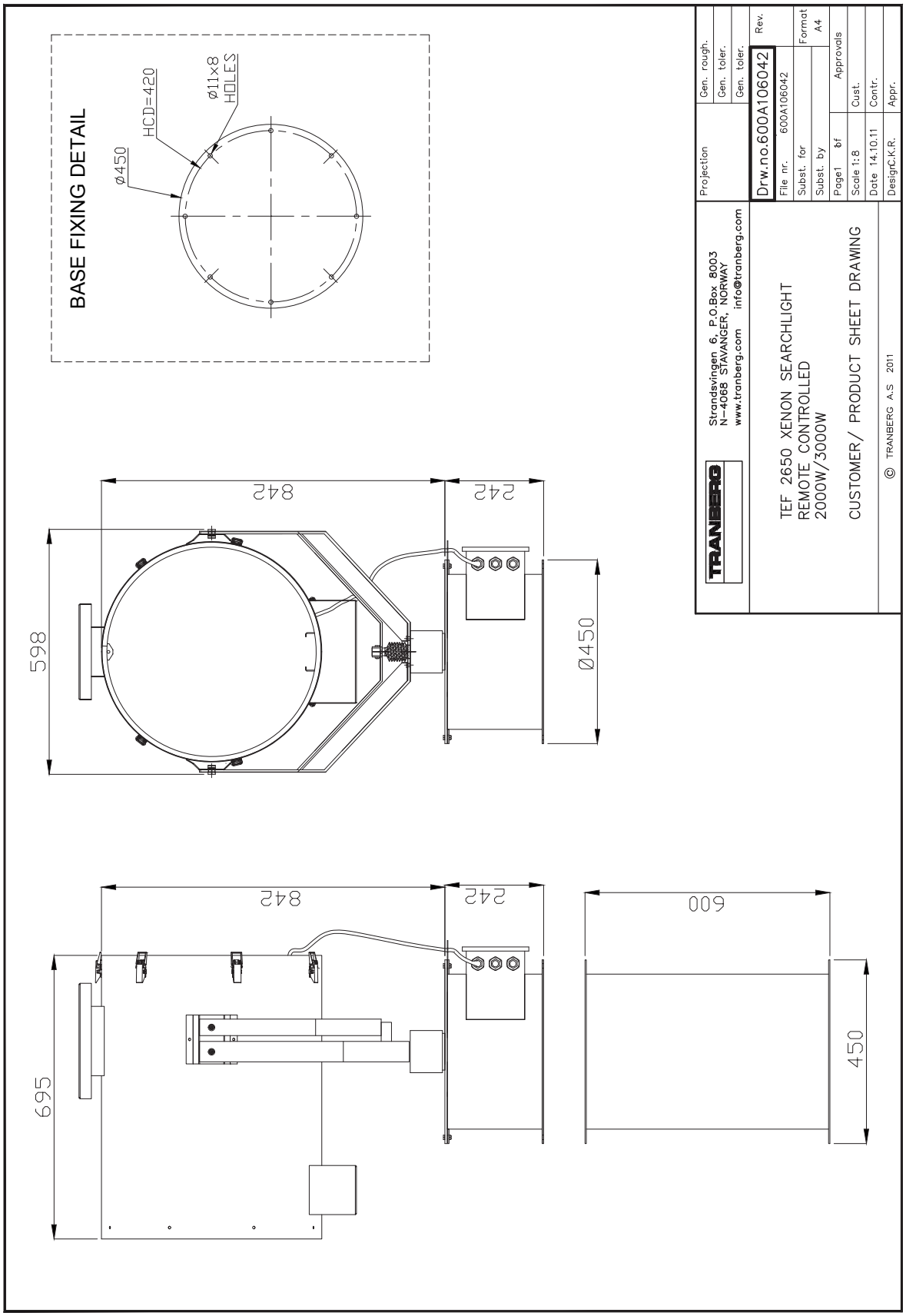
600A102892 - TEF 2650 XENON 1000/1600/2000W, DIMENSIONAL DRAWING



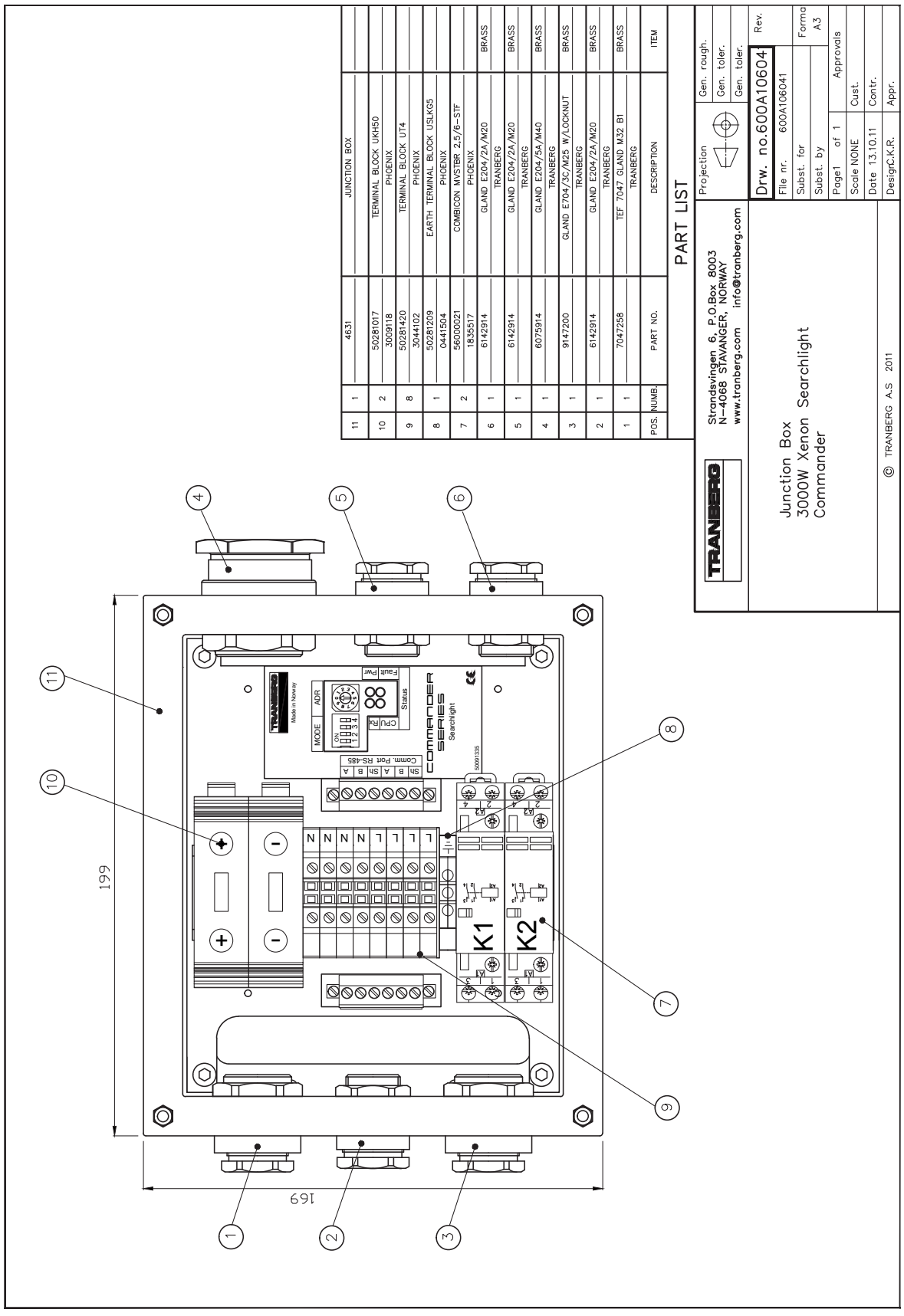
600A104859 - JUNCTION BOX TEF 2650 1000/ 1600/ 2000W XENON



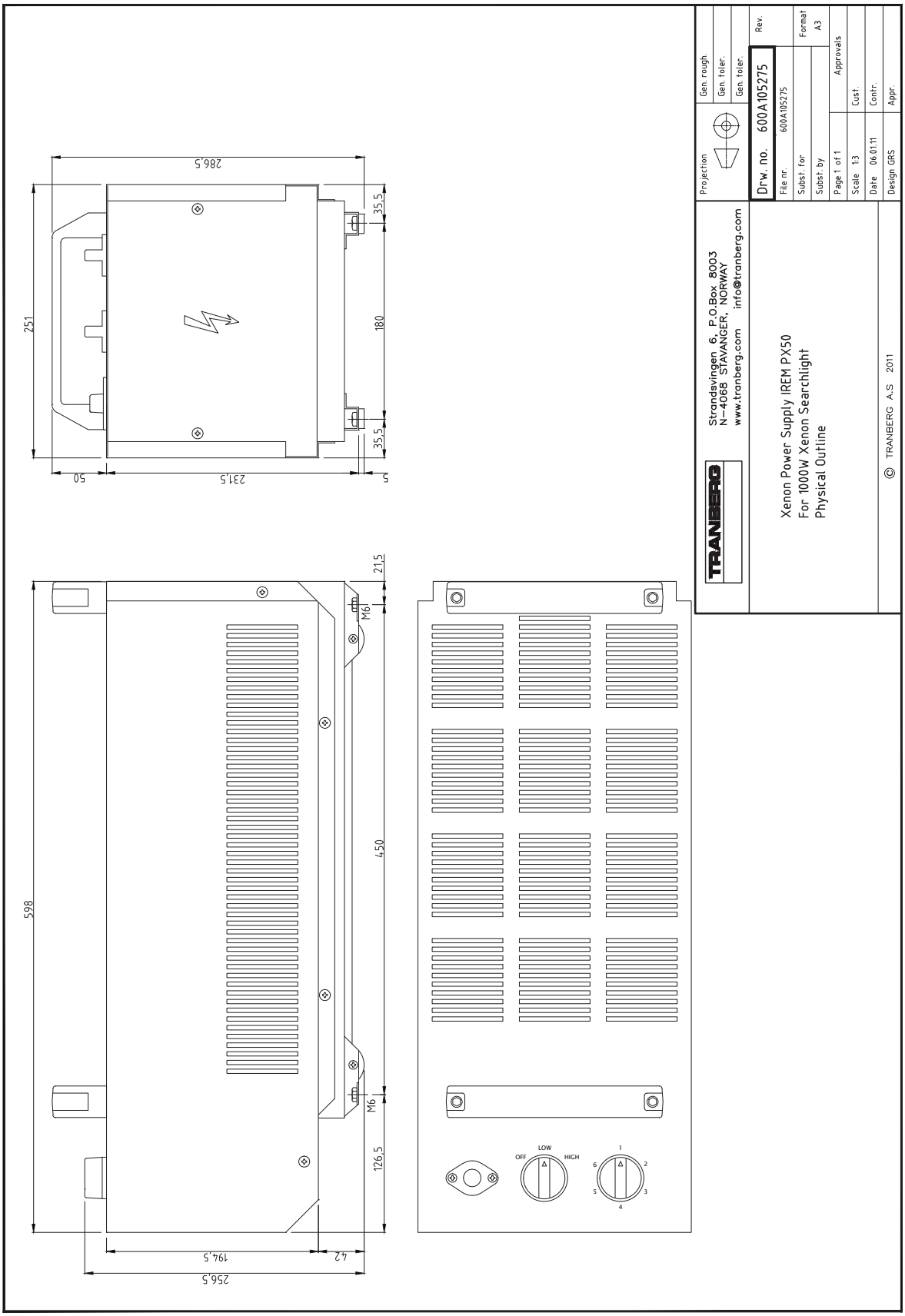
600A106042 - TEF 2650 XENON 3000W, DIMENSIONAL DRAWING



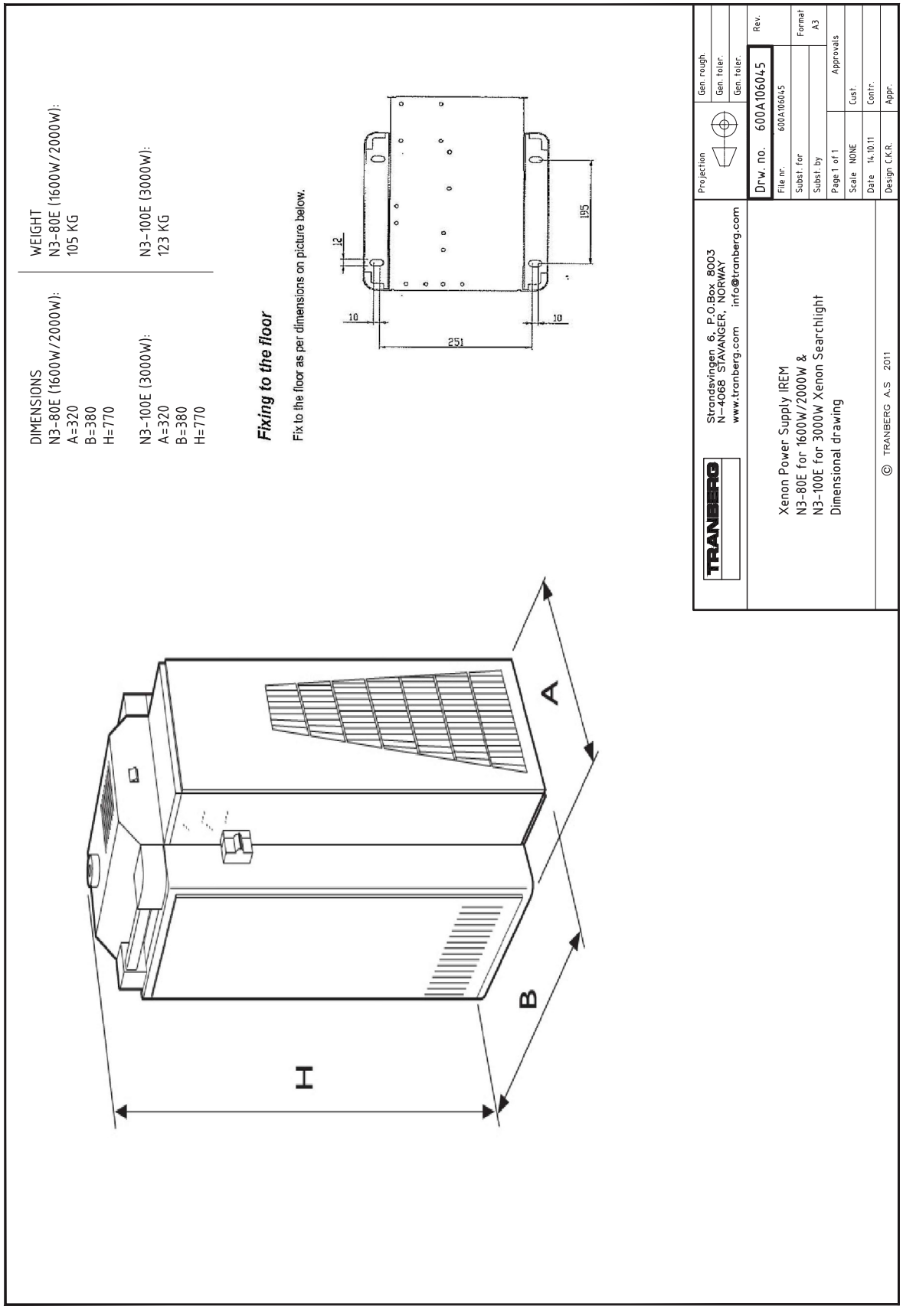
600A106041 - JUNCTION BOX TEF 2650 XENON 3000W


PART LIST
POS. NUMB. | PART NO. | DESCRIPTION | ITEM
11 | 1 | 4631 | JUNCTION BOX
10 | 2 | 50281017 | TERMINAL BLOCK UKH50 | PHOENIX | 3009118
9 | 8 | 50281420 | TERMINAL BLOCK UT4 | PHOENIX | 3044102
8 | 1 | 50281209 | EARTH TERMINAL BLOCK USLKG5 | PHOENIX | 0441504
7 | 2 | 56000021 | COMBICON MVSTBR 2,5/6-STF | PHOENIX | 1835517
6 | 1 | 6142914 | GLAND E204/2A/M20 | TRANBERG | BRASS
5 | 1 | 6142914 | GLAND E204/2A/M20 | TRANBERG | BRASS
4 | 1 | 6075914 | GLAND E204/5A/M40 | TRANBERG | BRASS
3 | 1 | 9147200 | GLAND E704/3C/M25 W/LOCKNUT | TRANBERG | BRASS
2 | 1 | 6142914 | GLAND E204/2A/M20 | TRANBERG | BRASS
1 | 1 | 7047258 | TEF 7047 GLAND M32 B1 | TRANBERG | BRASS
TRANBERG
Strandsvingen 6, P.O.Box 8003
N-4068 STAVANGER, NORWAY
www.tranberg.com info@tranberg.com
Junction Box
3000W Xenon Searchlight
Commander
Projection
Gen. rough.
Gen. toler.
Gen. toler.
Rev.
Drw. no.600A10604
File nr. 600A106041
Subst. for
Subst. by
Forma A3
Page1 of 1
Approvals
Scale NONE
Cust.
Date 13.10.11
Contr.
Design C.K.R.
Appr.
© TRANBERG A.S 2011
199
169
K1
K2
COMMANDER SERIES
Searchlight
Comm. Port RS-485
MODE
ADR
Status
Fault Pwr
CPU
Made in Norway

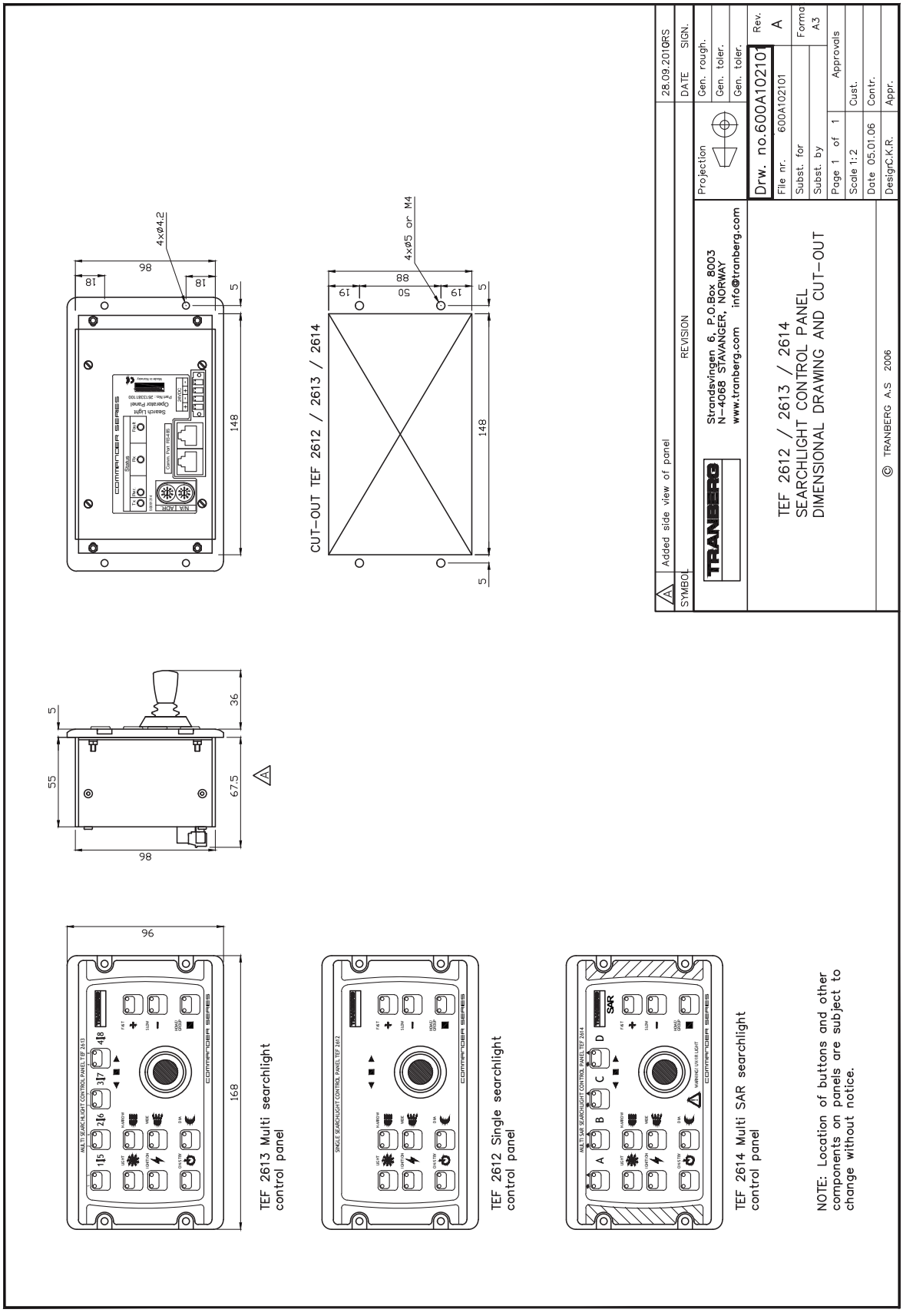
600A105275 - DIMENSIONS XENON POWER SUPPLY (IREM PX50)



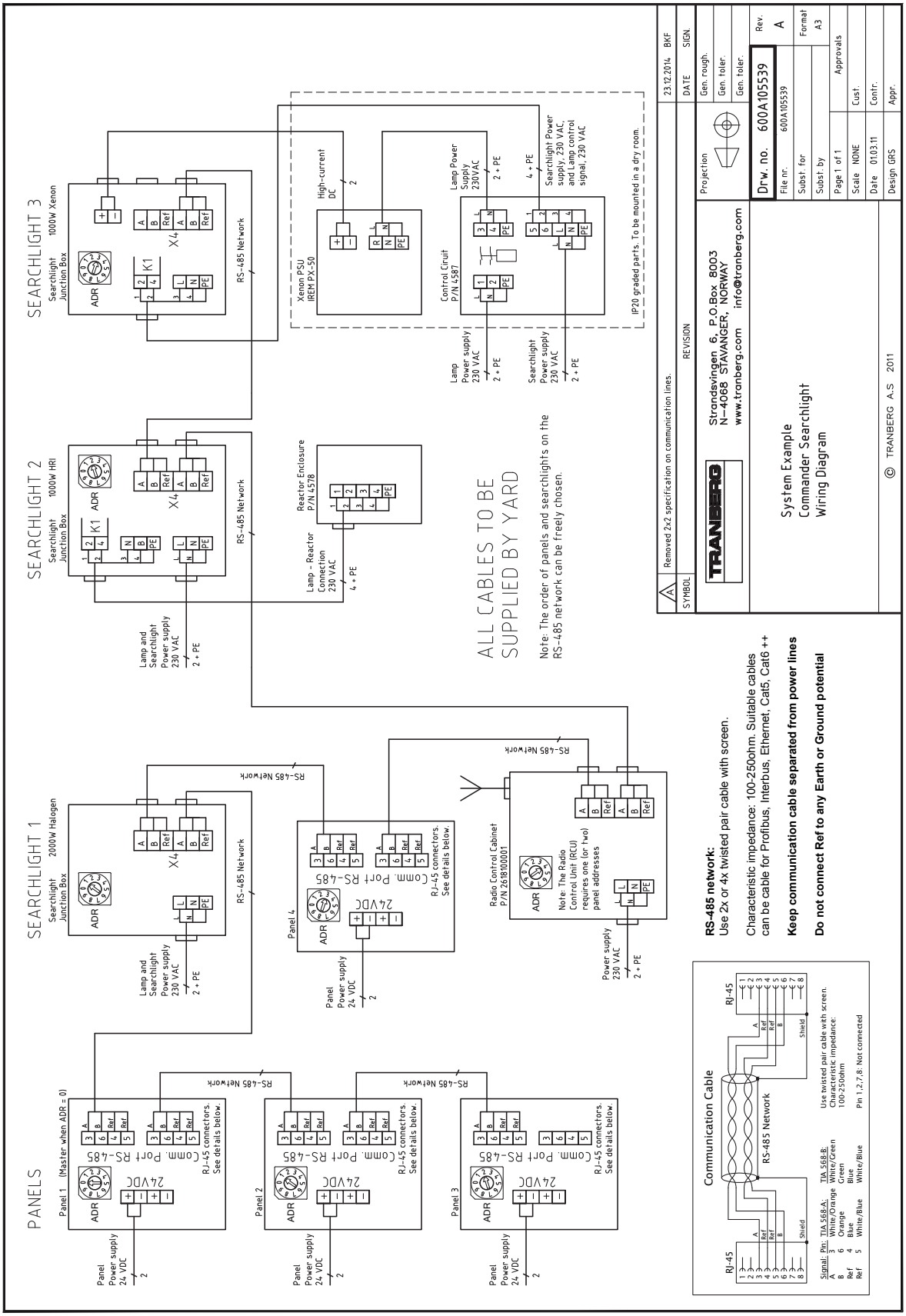
600A106045 - DIMENSIONS XENON POWER SUPPLY (IREM N3-100)



600A102101 - CONTROL PANELS DIMENSIONS AND CUT-OUT



600A105539 - SYSTEM EXAMPLE, WIRING DIAGRAM


SEARCHLIGHT 3
SEARCHLIGHT 2
SEARCHLIGHT 1
PANELS
ALL CABLES TO BE SUPPLIED BY YARD
Note: The order of panels and searchlights on the RS-485 network can be freely chosen.
RS-485 network:
Use 2x or 4x twisted pair cable with screen.
Characteristic impedance: 100-250ohm. Suitable cables can be cable for Profibus, Interbus, Ethernet, Cat5, Cat6 ++
Keep communication cable separated from power lines
Do not connect Ref to any Earth or Ground potential
Communication Cable
RS-485 Network
Strandsvingen 6, P.O.Box 8003
N-4068 STAVANGER, NORWAY
www.tranberg.com info@tranberg.com
System Example
Commander Searchlight
Wiring Diagram
Drw. no. 600A105539
Rev. A
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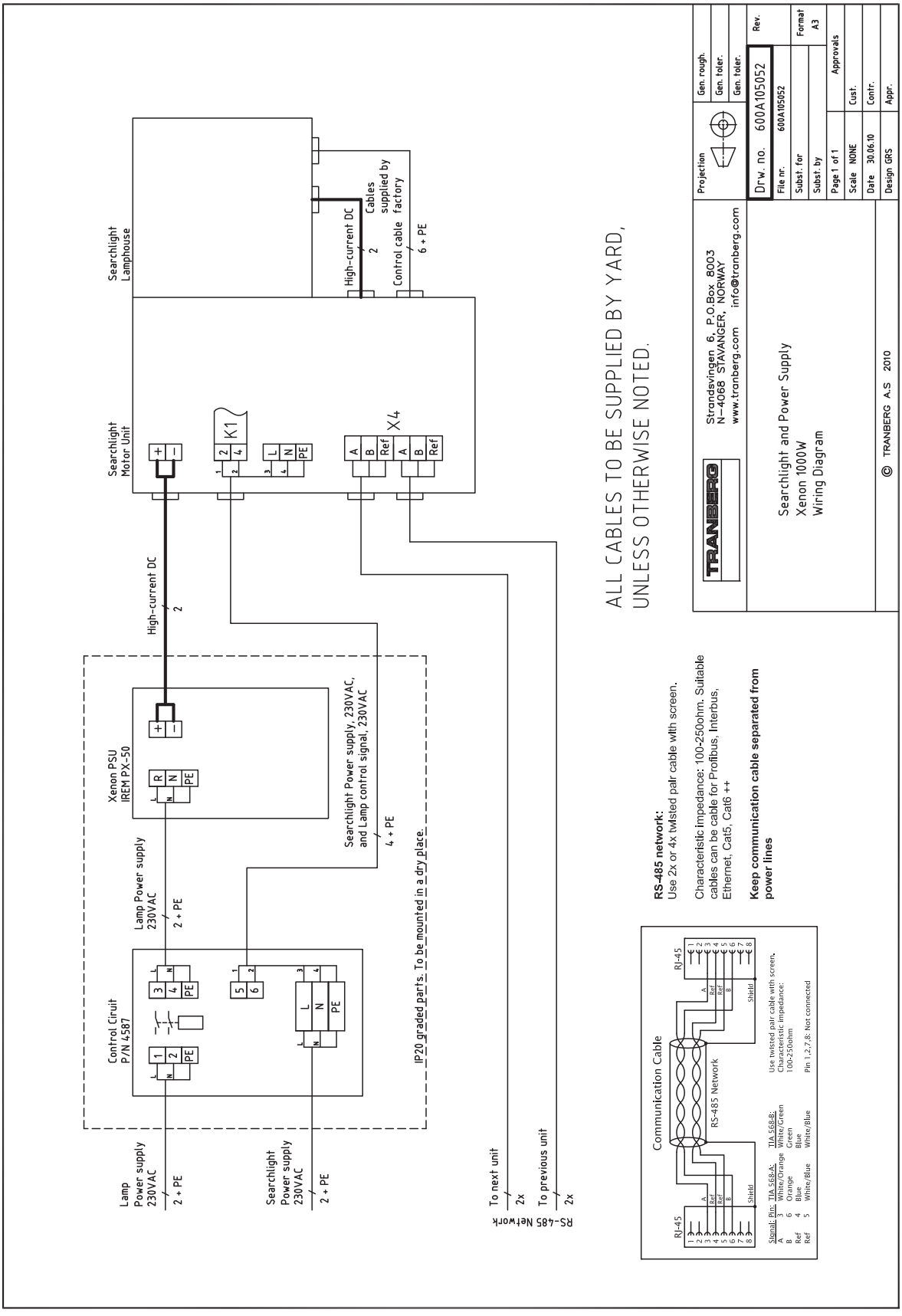
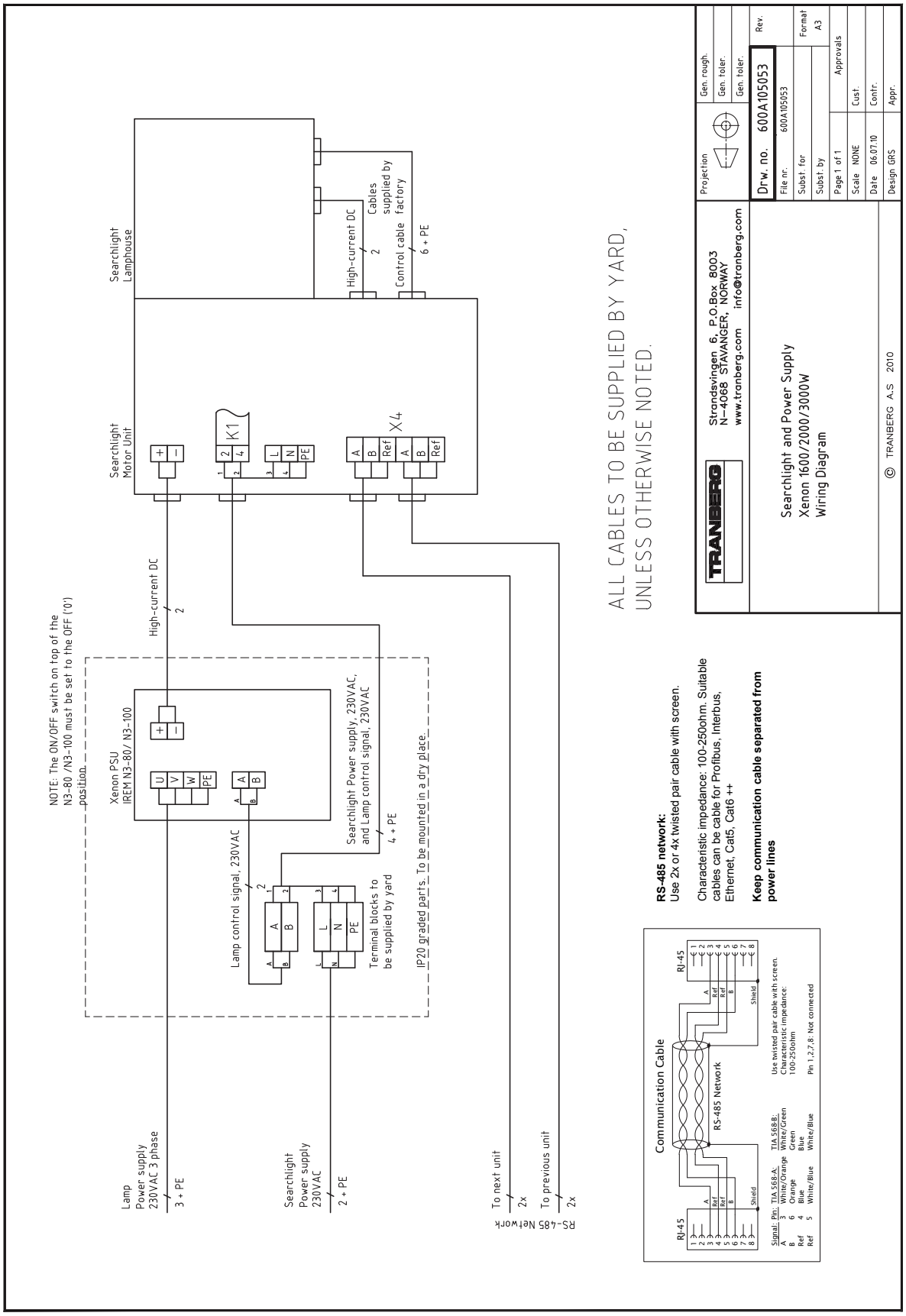
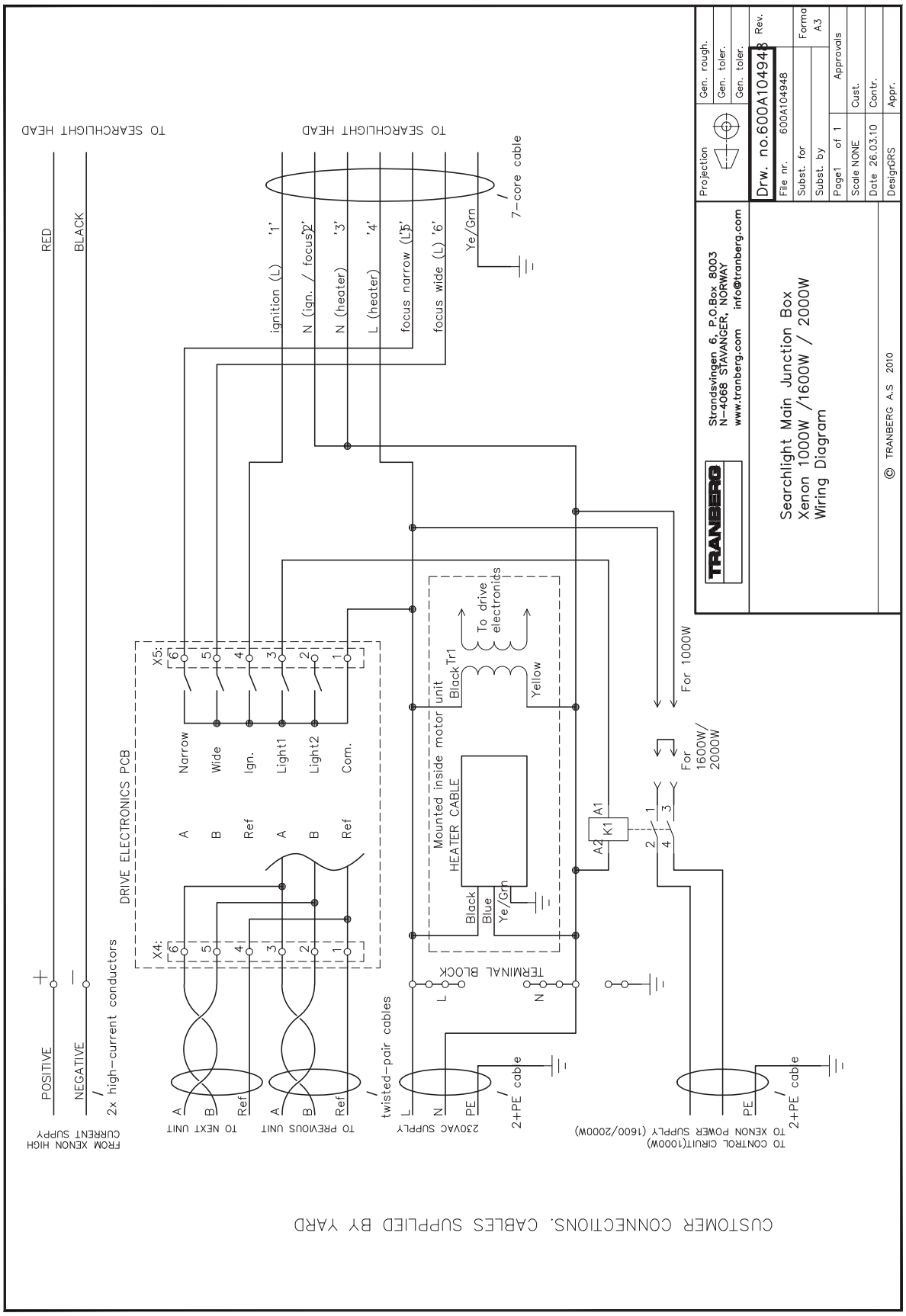
600A105052 - SEARCHLIGHT AND POWER SUPPLY 1000W, WIRING DIAGRAM



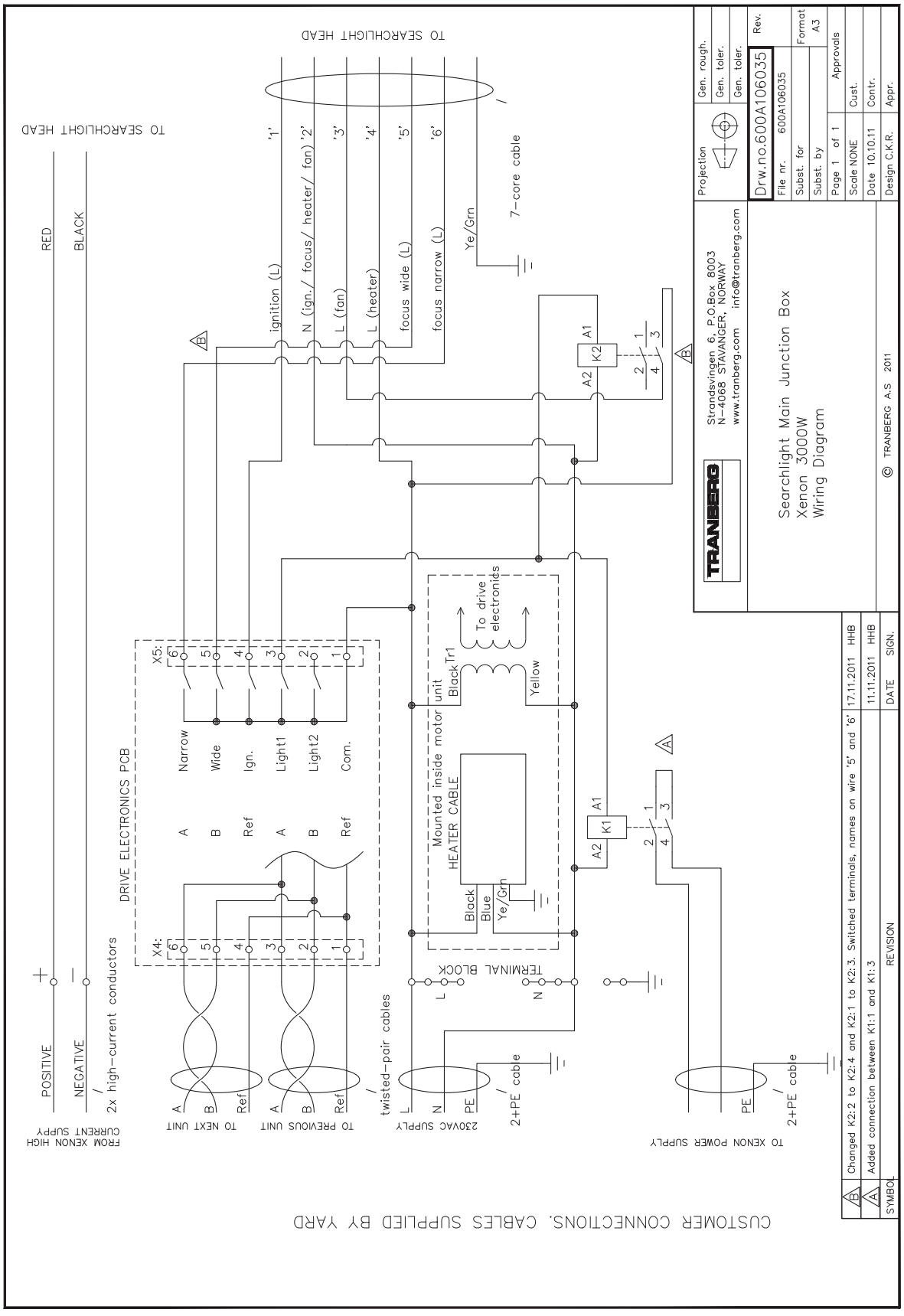
600A105053- SEARCHLIGHT AND POWER SUPPLY 1600/2000W, WIRING DIAGRAM



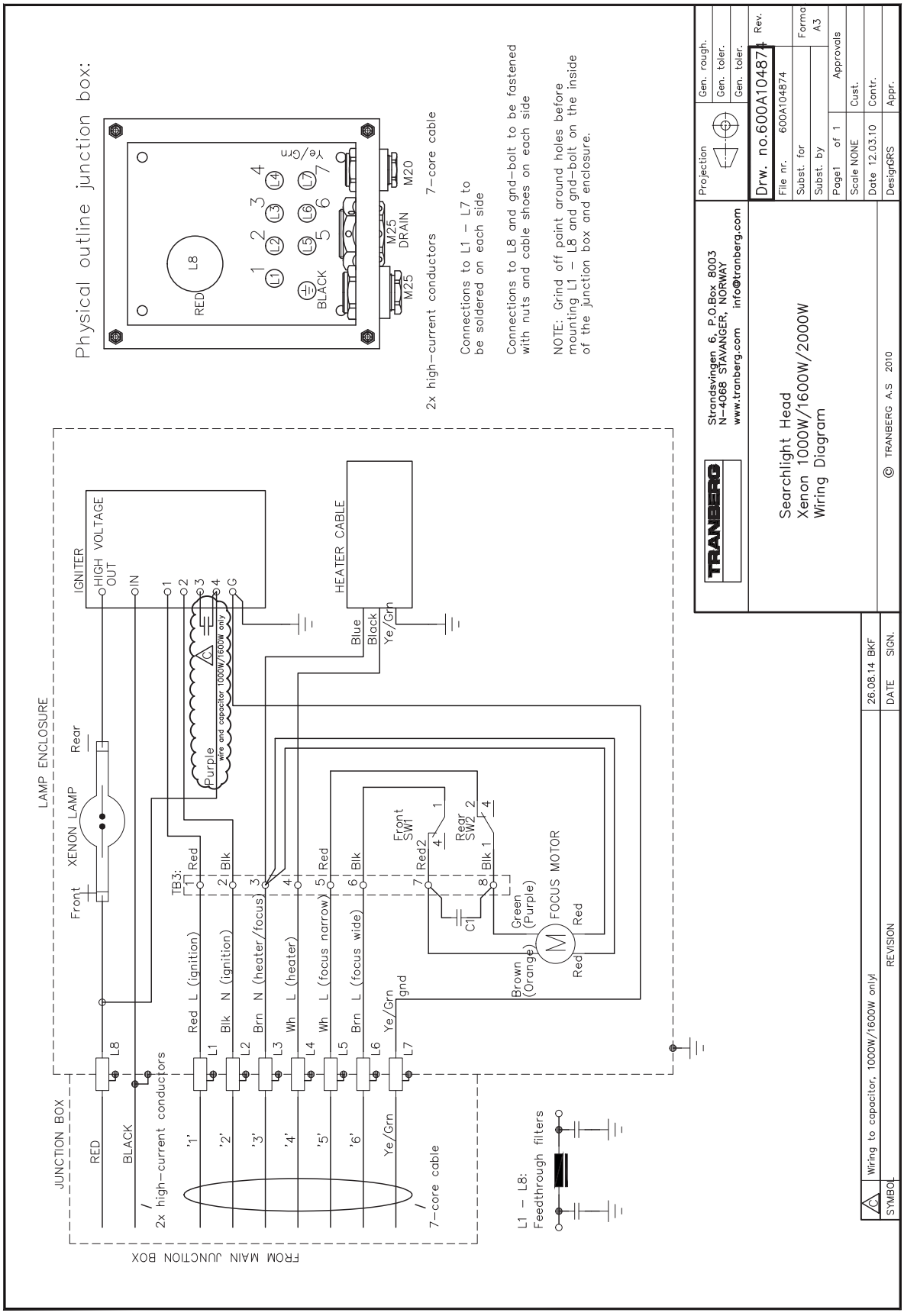
600A104948 - XENON 1000/ 1600/ 2000W MAIN JB, WIRING DIAGRAM



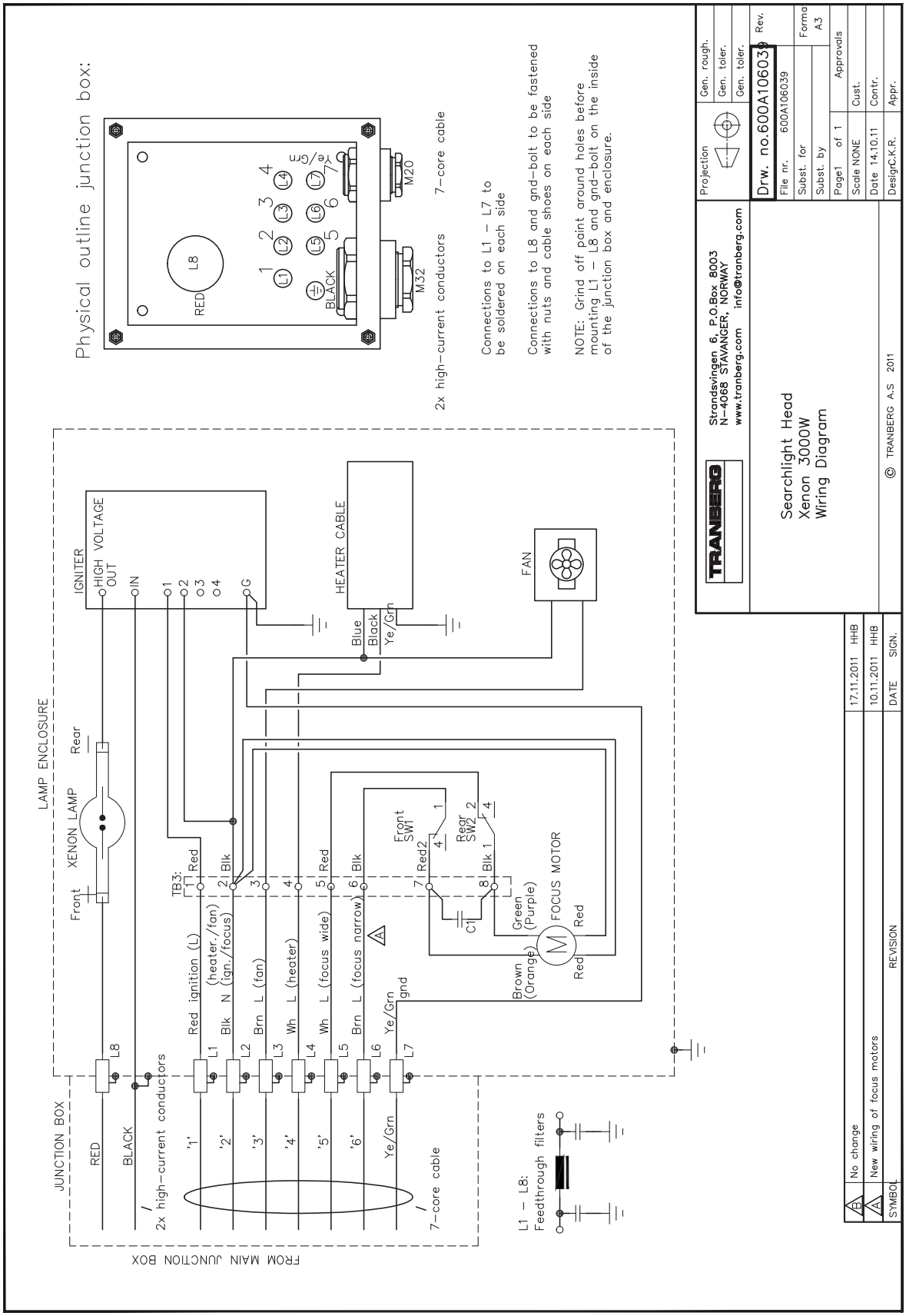
600A106035- 3000W XENON MAIN JB, WIRING DIAGRAM



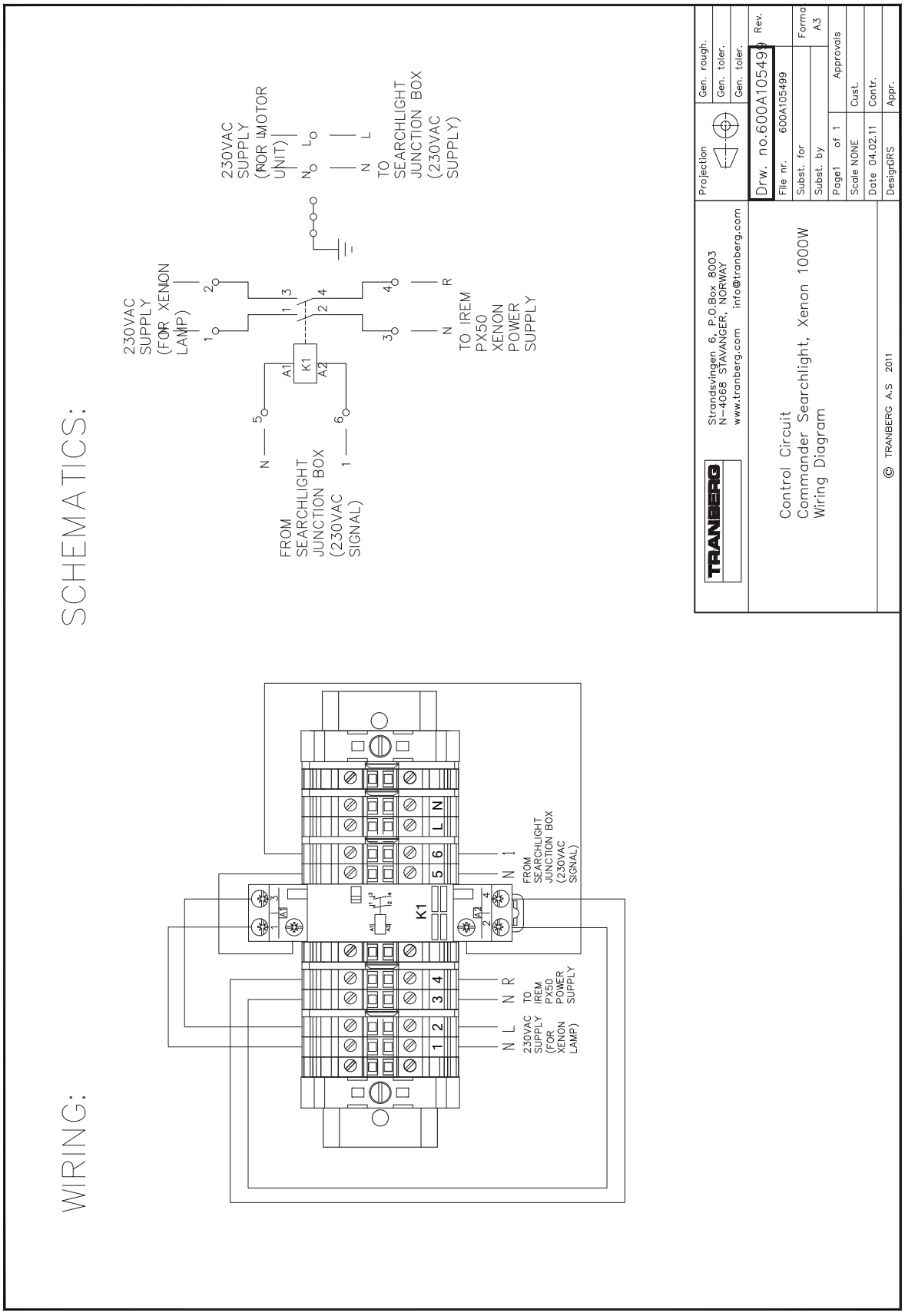
600A104874 - SEARCHLIGHT HEAD XENON 1000/1600/2000W, WIRING DIAGRAM



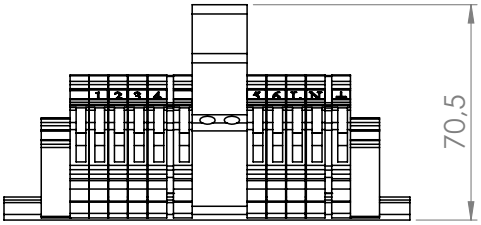
600A106039 - SEARCHLIGHT HEAD XENON 3000W, WIRING DIAGRAM

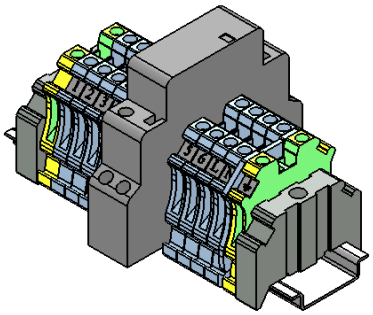


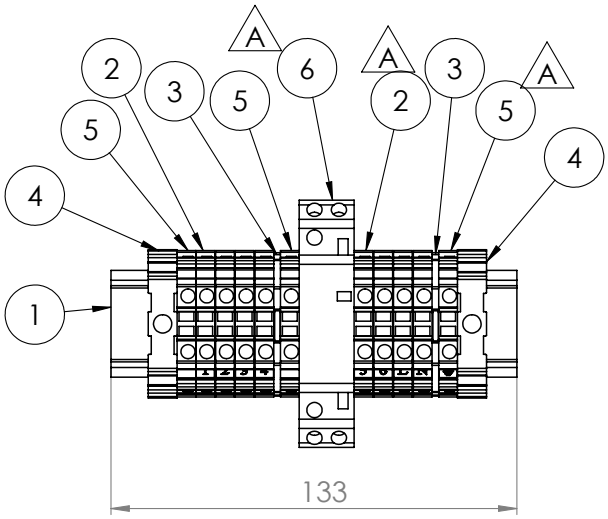
600A105499 - CONTROL CIRCUIT XENON 1000W, WIRING DIAGRAM

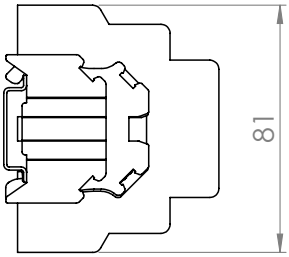


600A105319 - CONTROL CIRCUIT XENON 1000W









MARKING ON TERMINALS:

1 2 3 4 5 6 L N ⏚

ITEM NO.	Description	SW-File Name(File Name)	Part no.	QTY.
1	TERMINAL RAIL SS35 133MM	SS35_210MM		1
2	TERMINAL UT4	3044102_ut4_select		8
3	END PLATE	3047028_d_ut25-10_select		2
4	END HOLDER	0800886_e-ns-35-n_select		2
5	EARTH TERMINAL UT 4-PE	3044128_ut4_pe_select	50281328	3
6	CONTACTOR	600A105340	50231043	1

REVISIONS

ZONE	REV.	DESCRIPTION	DATE	SIGN.
A	A	CHANGED TYPE OF CONTACTOR, ADDED MORE TERMINALS.	08.12.2010	C.K.R.

TRANBERG

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www.tranberg.com info@tranberg.com

Projection

Unless otherwise specified:
Dimensions are in mm.
Tolerances according to ISO 2768-

Control Circuit, Xenon 1000W, 230VAC, IP20
SEARCLIGHTS
PART NO: 4587

Drw. no. 600A105319 Rev. A
File 600A105319
Subst. for
Subst. by
Format A4
Page 1 of 1
Scale 1:2
Date 01.08.2011
Design C.K.R.
Approvals
Cust.
Contr.
Appr.

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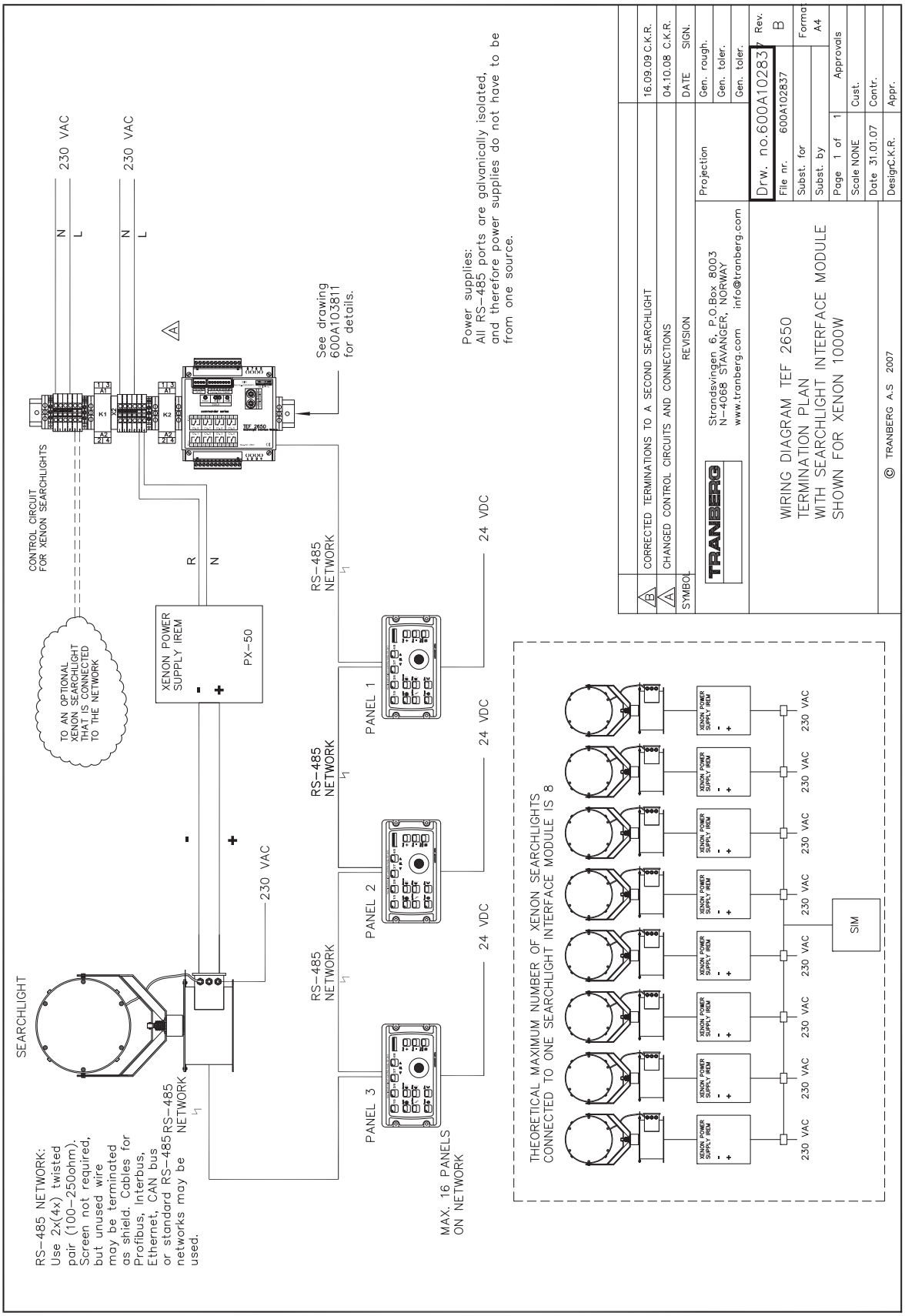
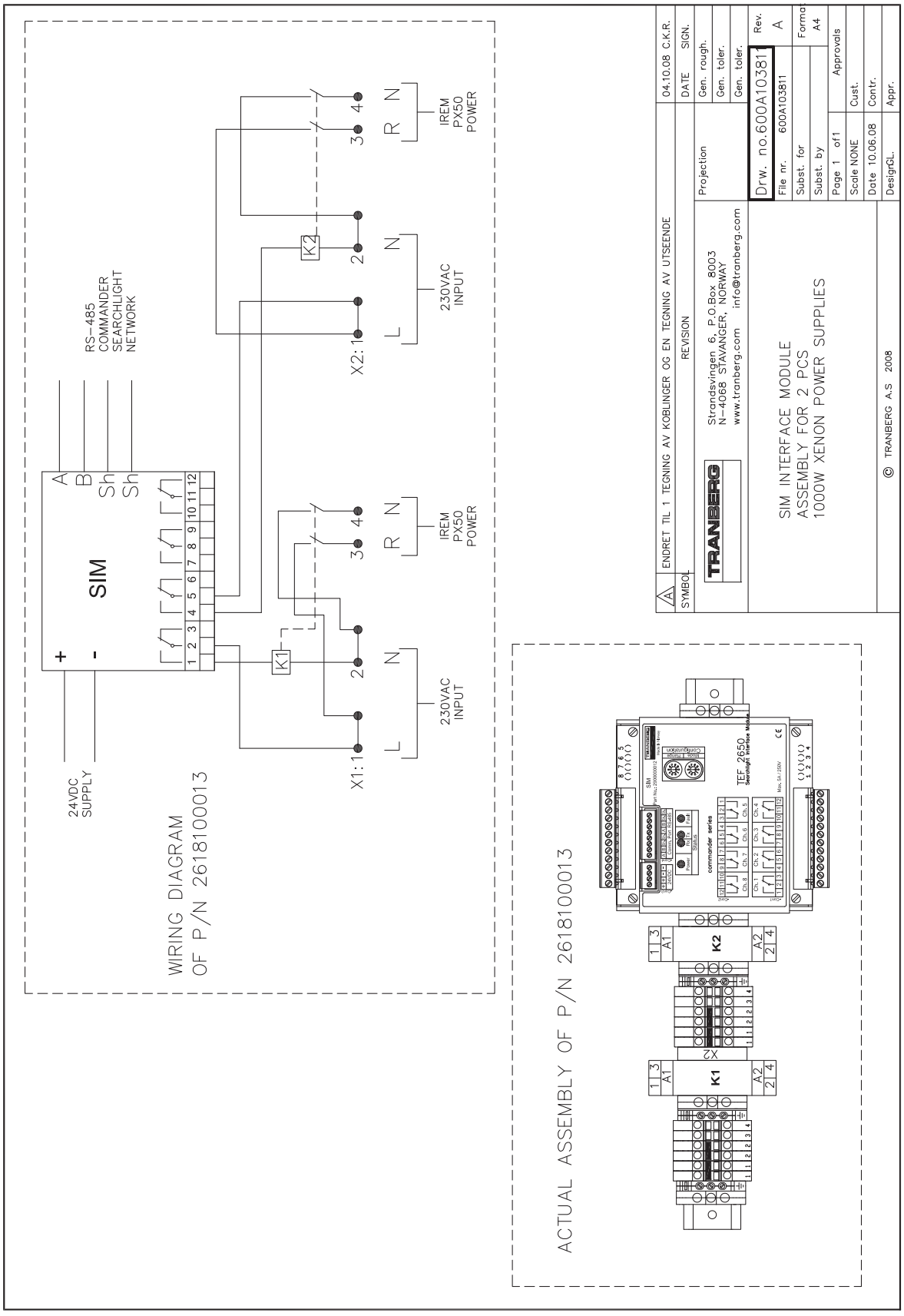
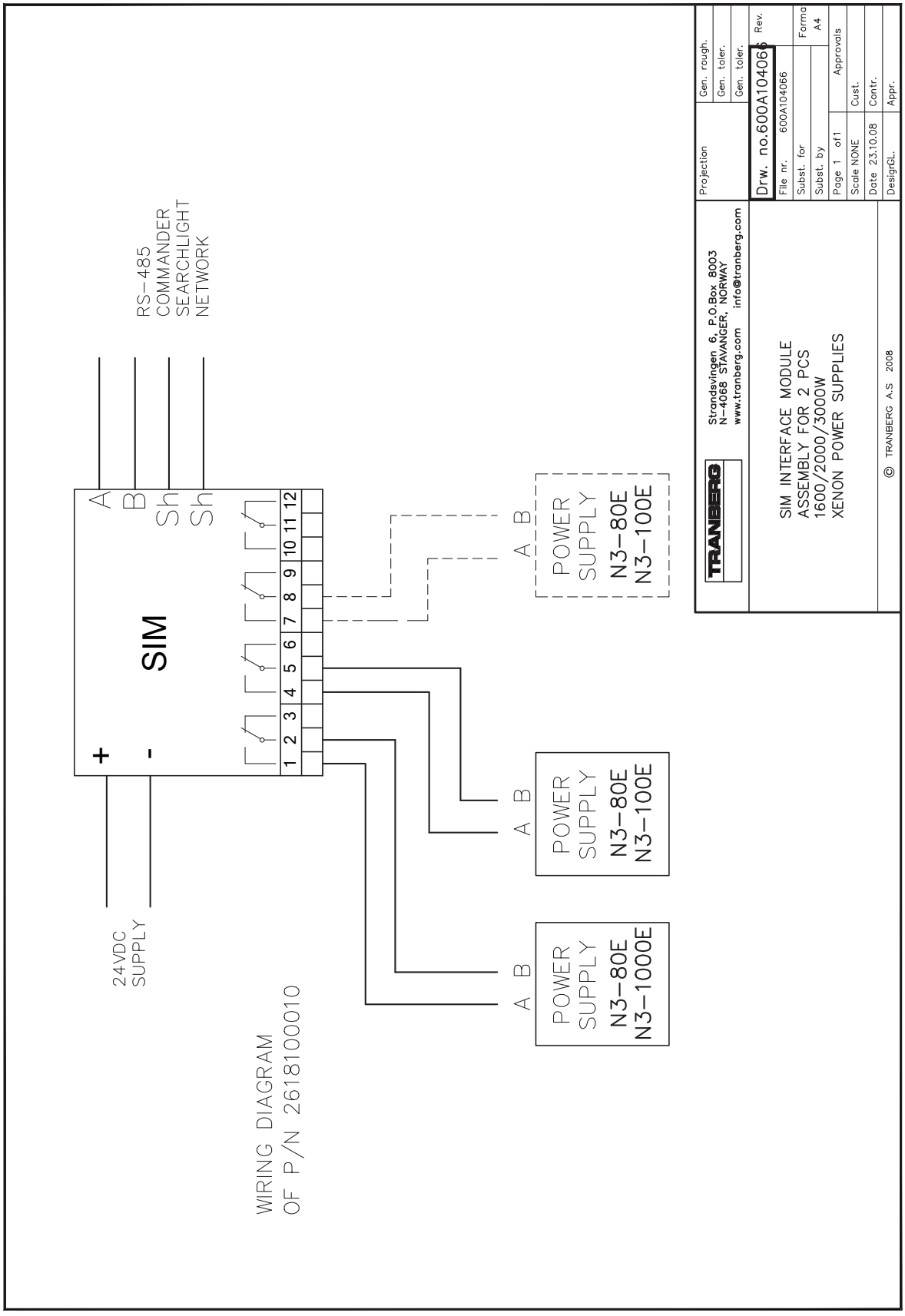
600A102837 - TERMINATION PLAN FOR SEARCHLIGHT XENON 1000W



600A103811 - SIM INTERFACE MODULE, 1000W XENON POWER SUPPLIES



600A104066 - SIM INTERFACE, 1600/2000/3000W XENON POWER SUPPLIES



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E-mail: mail@tranbergsystems.com | www.tranbergsystems.com